

ANIMAL KEEPERS' FORUM

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34th Anniversary - 1974 - 2008

MISSION STATEMENT

American Association of Zoo Keepers, Inc.

To provide a resource and a forum of continuing education for the animal care professional and to support zoo and aquarium personnel in their roles as animal care givers, scientific researchers, public educators and conservationists. To promote zoos and aquariums as cultural establishments dedicated to the enrichment of human and natural resources; to foster the exchange of research materials, enrichment options and husbandry information through publications and conferences which will lead to a greater understanding of the needs and requirements of all animals.

This month's cover features a drawing of three Chacoan peccary (Catagonus wagneri) drawn by Marie Vester, artist for the Los Angeles Zoo and Botanical Garden's Docent Newsletter and a volunteer in the zoo's research department. The Chacoan peccary is found in the Gran Chacoan region of western Paraguay, northern Argentina and southeastern Brazil. The species is diurnal and lives in semi-arid thorn forest in areas of low rainfall and high temperature. Peccaries prefer cacti and bromeliads as their main food, but also eat other plants and fruits. They lick mineral rich soil from salt licks and leaf cutter ant mounds. Peccaries live in small stable groups of 4-5 adults and accompanying juveniles. The recent decline and range of this species is due to overhunting, habitat clearance for cattle ranching, disturbance from development, and disease. Chacoan peccaries are classified as endangered by the International Union for the Conservation of Nature (IUCN). The three male Chacoan peccaries at the Los Angeles Zoo are named Ian, Stewart, and Greg but are more commonly called Mr. Pink, Mr. Blue, and Mr. Green in reference to their ear tags. They love mealworms and other bugs for their afternoon treat. Their keeper says they always stick together and do not live up to the peccary's reputation for aggressiveness. They are social and communicate by grunting. Young are generally born between the months of September to December, but litters have been found almost year-round. Births have been linked to periods of food abundance and rainfall. The average number of embryos has been recorded as approximately 2.72. Females may leave the herd to give birth and then return afterwards. Newborns are precocial, able to run a few hours after birth. The pelage of the young resembles that of the adults. There is no sexual dimorphism. The Chacoan peccary has the unusual distinction of having been first described based on fossils and was originally thought to be only an extinct species. In 1975 the animal was discovered to still be alive and well in the Chaco region of Paraguay. The species was well known to the native people, but it took a while for scientists to rediscover its existence. Thanks, Marie!

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKE*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone 785-273-9149; FAX (785) 273-1980; email is akfeditor@zk.kscoxmail.com< If you have questions about submission guidelines, please contact the Editor.

Deadline for each regular issue is the 10th of the preceding month.

Dedicated issues may have separate deadline dates and will be noted by the editor.

Articles printed do not necessarily reflect the opinions of the *AKE* staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

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BFR Website: <http://aazkbfr.org>

Scoops & Scuttlebutt

From the 2008 Conference Committee

Our ultimate goal for the 2008 AAZK National Conference was to inspire, inform and empower the delegates throughout the week. We're confident that through interactive workshops and motivational presentations on innovative techniques and achievements in animal care, welfare, conservation, education and research, that we accomplished this and more! We hope you all had a great time in Salt Lake City!



The Utah Chapter AAZK members and conference committee chairs would like to thank the staff and members of AAZK, Inc., the staff and volunteers at Utah's Hogle Zoo, all of our sponsors, our families and friends, and everyone who helped us during the past three years. The success of this conference is a reflection of the passion and pride that we have for our profession and our Zoo and would not have been possible without your support!

Bethany Bingham

2008 AAZK National Conference Co-Chair

IRF Seeks Research Pre-Proposals

The International Rhino Foundation (IRF) is requesting pre-proposals for research that is directly applicable to management, propagation and conservation of rhinoceros species under intensive protection and management in the wild or maintained in captivity. Project costs should range from \$5,000 to \$50,000. Multi-year projects should not exceed three years. A panel of established scientists, veterinarians and IRF Board members will review and score all pre-proposals and the final decision on those investigators invited to submit a full proposal will be announced no later than 30 January 2009. Pre-proposals must be received **by 15 December 2008** and must follow the requested format to be considered for support. For complete details on target topic areas that will be considered, required pre-proposal format, etc. please visit <http://www.rhinos-irf.org/proposals/> or check the AAZK website at www.aazk.org<

Indianapolis Prize 2010 Nominees Solicited

The deadline for nominations for the next Indianapolis Prize in 2010 is fast approaching. Nominations will be accepted through **1 December 2008**. the biennial award is given to an individual animal conservationist who has made significant achievements in advancing sustainability of an animal species or group of species. The \$100,000 prize is an unrestricted gift to the recipient who is chosen from among the nominees by a jury of the top conservation scientists in the world. Past winners have included Dr. George Archibald, co-founder of the International Crane Foundation, in 2006; and Dr. George Schaller, field biologist with the Wildlife Conservation Society in 2008. For complete guidelines and to learn more about the Indianapolis Prize and the nominating process, email nomination@indianapolisprize.org<

2009 Marks an Election Year for AAZK

AAZK, Inc. will be holding an election for new members for its Board of Directors in 2009. Board seats being vacated are held by Denise Wagner, Phoenix Zoo; Tammy Root, Indianapolis Zoo; and Jacque Blessington, Kansas City Zoo. AAZK will be soliciting nominations from the membership so start thinking about individuals who would make good Board members. We will not be publishing Nominator/Nomination forms in *Animal Keepers' Forum* as we have for past elections. The criteria for nomination and the required forms will be available for download from the AAZK website. The election itself will also be handled electronically from the website. Watch both *AKF* and the website for further information on the 2009 election process.

Dear AAZK Members,

The Greater Houston Chapter of AAZK would like to announce that we are organizing a Hurricane Relief Fund for the staff at Moody Gardens, Downtown Aquarium, and the Houston Zoo. Most of you have probably seen the devastation of Galveston Island from Hurricane Ike on the national news. Many of the keepers and staff were affected and are in need of financial help. You can help play a part by having your Chapter donate to our Hurricane Ike Relief Fund. Please contact GHCAAZK Chapter President Pam Jones at the Houston Zoo (pjones@houstonzoo.org). Thank you for your support.

Rachel Hymas, GHCAAZK Liaison

Australasian Society to Present Conference, Makes Call for Papers

The Animals and Society (Australia) Study Group and The University of Newcastle will co-sponsoring the 2009 International Academic and Community Conference on Animals and Society Minding Animals We invite you to join us between 13-18 July 2009, at Civic Precinct, Newcastle, Australia.

Proposals are invited for panel presentations on zoos and zoo culture, to be part of the 'Minding Animals' conference. Possible topics include: zoos and species preservation, zoos and heritage, zoos and conservation, zoo design and architecture, zoos and ecology, zoos and education, zoos and empire, zoos and animal rights, zoos and children's literature, zoos and film, zoos and science, zoos and the public realm, zoos and fiction, and zoos and traditional knowledge. Suggestions for topics are welcome.

For the panels on zoos and zoo cultures, please send expressions of interest and/or a proposed paper title and 250-word abstract to the panel convenor: Jamie.Scott@newcastle.edu.au< Please note, if you become a member of a panel, you will still need to lodge your abstract separately on the conference website by 30 January, 2009. **Deadline for panel submissions is 15 January, 2009.** For full information/details on 'Minding Animals,' please see the conference website: <http://www.mindinganimals.com><

Assistance Sought on Zoo Stories Collection

AAZK member Tracy Syoen is seeking zoo stories from fellow keepers. Tracy is looking for excerpts about zookeeper interactions with their animals and their zoo's visitors. The hope is to put these together in a book discussing the good, the bad, the funny, the touching and the exciting events that make up the lives of those in the zookeeping profession. If you are interested in participating, please email at Tracysakeeper@aol.com and put "Keeper Story" in the subject line. Or you can send your submissions to Tracy at 592 Red Tail Lane, Yorkville, IL 60560. Please include your name, address and email contact information.

Problem with Profile Info on Member's Only Section of Website

It is important for all AAZK members to understand that the information you fill out in the Profile area on the Member's Only section of the AAZK website (www.aazk.org) DOES NOT come to the Administrative Office. Therefore, if you enter a change of address or name change in this section, we do not receive it. If you need to register a change of address or a name change for the receipt of AKF, you need to do so by clicking on the "Change Your Address Here" link under the Reminder Board on the homepage. Or you may call 785-273-9149 or email Administrative Secretary Barbara Manspeaker at aazkoffice@zk.kscoxmail.com<

From the Executive Director . . .

A word of thanks....

Thank you to the Utah Chapter of AAZK for a tremendous conference. The event was well-planned and well-organized and obviously, great effort and thought went into the Conference.

Thank you to Bethany Bingham and Joanne Randinitis for their hard work in coordinating the conference and working hard to take care of the delegate needs, the needs of the sponsors and the needs of the Board of Directors.

Thanks to our primary sponsors of the Conference: Utah's Hogle Zoo, Polar Bears International, Boomer Ball®, Leather Elves and all the rest that contributed to its success.

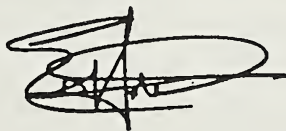
Thanks to Utah's Hogle Zoo and Craig Dinsmore, Director and Kimberly Davidson, Assistant Director. Their support of the Chapter, staff of Utah's Hogle Zoo and the animal keeping profession contributed to the success of the Conference.

Thanks to Tim Brown and the staff of the Tracy Aviary who graciously hosted the Conference for breakfast. This unique facility is desperately seeking the support of their community and AAZK hopes they achieve their goal.

Finally and most importantly, thanks to you, the members of this Association and this profession. Your continued support of the Association through membership and the purchase of logo items from the AAZK store go a long way to helping AAZK progress through difficult financial times.

A word about the future....

We all set personal goals that chart our path to the future, and AAZK is no exception. The Board of Directors is making changes to our business plan, our conservation funding strategies, the way we will present conferences and finally our media publications, the *Animal Keepers' Forum*, AAZK INSIGHT and the website. These changes are for your benefit and the benefit of the profession. Tune in to AKF, AAZK INSIGHT and the website. The next couple of years will be exciting.



Ed Hansen, AAZK Executive Director
Tucson, AZ





In Memorium

Pat Sammarco

10-29-46 ~ 9-6-08

Editor's Note: In September, AAZK lost one of its champions with the death of Patricia Ellen Sammarco. Pat was AAZK President when I first came to work for the Association in 1981. Under her leadership and with her vision, AAZK made tremendous strides in moving towards becoming a more professional and highly respected organization within the world zoo

community. Pat was all about knocking down barriers and moving the role of zookeeper from "just a job into a profession". She worked tirelessly to promote professional development and keeper education within AAZK, and made inroads in developing strong and lasting relationships with other similarly-minded zoo organizations. Under her guidance the Infant Development Data Project was initiated and the Keeper Education Committee became a reality. Like many of you, I had the wonderful opportunity of seeing Pat again at the 2007 Conference in Galveston where she was able to touch base with many of the keepers with whom she had worked on behalf of AAZK. AAZK owes Pat a huge debt of gratitude and she will be greatly missed. ~ SDC, AKF Editor.

The following was submitted by Pat's husband, Larry:

Pat started at Lincoln Park Zoo [LPZ] in Chicago in 1964 as a zoo-leader while attending the University of Illinois. Her original aim was to be a veterinarian. She was one of three women hired at the zoo (the others were Marge Seymour and Pat Sass) as the first females to work in this capacity. Of course they were first considered as "liaisons" between the guests and the zoo. They took out animals for public interaction and viewing. And as time went on they did more keeper duties besides "displaying" animals.

Pat realized that this was the path she wanted to pursue (being a zoo keeper) not as a vet. She became involved (as did others) in this fledgling organization soon to be known as AAZK in 1969. LPZ started a Chapter the same year and she and I got married. We were probably the first zoo couple in the keeper ranks. Besides becoming more involved with AAZK (i.e. trips to Topeka to keep the organization afloat!) locally and somewhat nationally, she was also involved in getting the zoo to allow women to take the exam and become zoo keepers! That happened in 1971 and finally dispelled the myth that only men could do the job.

As the years rolled by, our vacations were arranged around the national AAZK conferences to which we always drove when possible. She was asked by President Dennis Grimm to become vice president upon her election to the AAZK Board of Directors. This was followed up by her becoming President of the organization following the 1981 election. She and Jillian Grade (the vice president) became the first women to lead the Board of Directors. She was also the first two-term president. Pat worked for incorporating AAZK, and also developed a good working relationship with Robert Wagner of the then AAZPA (now AZA). These things raised the organization's status in the zoo field and helped bridge the gap between the two associations.

I think last year's conference in Galveston was a high note for her when so many people told her that she was their inspiration in following their zoo keeping career. What higher praise can one get than from your peers? I will truly miss her smile and intelligence from my daily life. Rest well my love.

~ Larry

Coming Events

Post Your Coming Events Here
email to: akfeditor@zk.kscoxmail.com

The 5th Crissy Zoological Nutrition Symposium - December 12-13, 2008 at the North Carolina State University School of Veterinary Medicine. This year's focus will be "Obesity in Zoological Species". For registration and a skeleton schedule please view www.cvm.ncsu.edu/conted/zoonutrition/

International Symposium on Bat Migration - January 16-18, 2009 in Berlin, Germany. For further info: batmigration09@izw-berlin.de or check the web page at <http://www.izwberlin.de>

5th International Workshop on Ultrasound & Assisted Reproduction in Elephants, Rhinoceros and Giraffe - January 22-25, 2009 in Cambridge, Ont., Canada. Program will include lectures and practical sessions. Hosted by African Lion Safari. Registrations due by Dec. 15, 2008. For information contact charlie Gray, African Lion Safari, RR# 1, Cambridge, Ont. N1R5S2, Canada or email cgray@lionsafari.com

Zoos and Aquariums Committing to Conservation - January 23-26, 2009. Hosted by the Houston Zoo, Houston, TX. ZACC is a bi-annual event that promotes the role of zoos and aquariums in supporting conservation activities worldwide, both at their institutions and in the field. Bringing together individuals from different countries and disciplines, ZACC conferences help to build a stronger and more effective global network for wildlife and habitat conservation, and to establish direct links to zoos, aquariums, and their constituencies. The '09 conference will have participants from over 20 countries and 60 presentations are currently included in the Program Draft now available as a pdf download from their website. For info contact: <http://www.houstonzoo.org/zacc> For questions you may call 713-533-6745/6836 or email conservation@houstonzoo.org

International Association of Avian Trainers and Educators 17th Annual Conference - February 24-28, 2009 hosted by the Cincinnati Zoo & Botanical Gardens. "09 in Nati" will feature papers, posters, site visits, roundtables, vendors and workshops. Topics include avian behavior, training, husbandry, conservation, strides in veterinary care, as well as show presentation, production and educational content. For further info please visit www.iaate.org or contact Eddie Annal at ed.annal@cincinnati.iaate.org

International Cassowary Summit - April 1-4, 2009 in Cairns, Queensland, Australia. The Australian Rainforest Foundation (ARF) invites you to the inaugural International Cassowary Summit held in the heart of the World Heritage listed Wet Tropics in tropical northern Queensland. The conference is focused on bringing together scientists, researchers, zoo curators, natural resource management and environmental groups to formalize how we must act and in what timeframe to ensure the survival of this keystone rainforest species. Workshops, plenary sessions and field trips will address a Recovery Plan for the cassowary, the current state of research, captive breeding, habitat analysis and threats, and potential wild releases. For more info email: info@arf.net.au

2009 Animal Behavior Management Alliance (ABMA) Conference - April 26 - May 1, 2009 in Providence-Warwick, RI at the Crowne Plaza Hotel. The theme is "Bridging the Gap" - bringing together trainers, handlers, and keepers of animals, irrespective of species to share information and address topics to help develop a comprehensive behavior management program. Does your behavior management program need a little spicing up? Join us to learn new techniques on how to connect with the animals in your care; including interactive training and enrichment workshops; and the importance of evaluating and documenting your behavior management program. All conference details, including the 1st Call for Papers, are available at www.theabma.org Send inquiries to Penny Krebs at pennkrebs@cox.net or to Jen Hennessy at jhennessy@rwpzoo.org

Prosimian Husbandry Workshop - April 30- May 2, 2009. Hosted by the Cleveland Metroparks Zoo. The workshop will emphasize group discussion of captive prosimian husbandry and management issues. Look for registration, lodging, and workshop information at the workshop web-page, www.clemetparks.com/prosimianworkshop

2009 Rhino Keeper Workshop - May 17-21, 2009 at Busch Gardens, Tampa, FL. Please watch website www.rhinokeepersassociation.org for updates regarding the workshop. Any inquiries may be directed to: internationalrhinokeepersassociation@gmail.com

Call for Papers: Persons interested in presenting a paper for the 2009 Rhino Keeper Workshop may submit their abstract electronically in MS Word to wendy.shaffstall@cincinnati.iaate.org Abstracts should be no more than 500 words. After abstracts are reviewed by the workshop presentation committee, presenters will be contacted. Deadline for submission is **December 1, 2008**.

The 9th International Conference on Environmental Enrichment - May 31 - June 5, 2009 in Torquay, Devon, UK. First Call for papers and Registration. Go to www.reec.info for details.

Joint 36th National AAZK and 3rd International Congress on Zookeeping Conference - September 24-29, 2009 in Seattle, WA. Hosted by the Woodland Park Zoo and the Puget Sound Chapter of AAZK. Check out www.pugetsoundaazk.org/ for conference information.

Neotropical Primate Husbandry, Research, and Conservation Conference - October 13-15, 2009 in Chicago, IL. Hosted by the Brookfield Zoo. This conference will focus on a variety of topics pertaining to neotropical primates and will bring together staff from zoological parks, sanctuaries, and universities, as well as field researchers and range country biologists to share the most current information on husbandry, conservation, and emergent issues pertaining to captive and wild populations of neotropical primates. The workshop will include three days of presentations, a poster session, an icebreaker, silent auction, and banquet. Additional information will be made available in late 2008. Please contact vince.sodaro@czs.org for additional information.

AAZK Announces New Distribution of BFR Funds

Historical Background

Bowling for Rhinos (BFR) was officially recognized by the AAZK Board of Directors as a national event of this Association in 1990. AAZK entered into a non-binding agreement to funnel BFR funds to the Ngare Sergoi Rhino Sanctuary (NSRS) via the Ngare Sergoi Support Group. The NSRS was established with funding from Anna Merz by the Craig Family in Kenya. Over time, the NSRS evolved into the Lewa Wildlife Conservancy (LWC), managed by CEO Ian Craig. Since its inception, LWC has partnered with local tribal groups, wildlife sanctuaries, and the Kenyan Wildlife Services to form the Northern Rangeland Trust in Kenya.

In 1994 AAZK began transferring BFR funds directly to LWC. This also marked the year when AAZK established that the first \$100,000 of annual BFR funds realized would be sent to LWC. At that time, all BFR funds were designated for Lewa and to fund the annual BFR winners' trips to LWC. A proposal was made in 1994 to include Indonesian rhino conservation to the BFR program. The proposal was approved by the AAZK Board of Directors for the 1995 Bowling for Rhinos event. All funds in excess of \$100,000 would go to Indonesian rhino conservation via Minnesota Zoo's Adopt-A-Park (AAP) program.

The AAP program was working extensively on conservation projects in habitat that included Indonesian species of rhinos. The intention was to support rhino conservation by providing funding to these parks where critically endangered rhinos existed. In 1996, Ujung Kulon National Park in Java was added to the BFR program. In 1997, the leaders of the AAP program and the International Rhino Foundation (IRF) agreed to share these BFR funds through a non-binding, informal agreement that would expand BFR funding to Bukit Barisan Seletan National Park in Sumatra. Way Kambas National Park was added to the BFR program in 2003. During the period of 2002-2007, the AAP would send their share of BFR funds directly to IRF for these Indonesian programs, but AAZK continued to observe AAP and IRF as two separate beneficiaries of BFR.

In 2006, the AAZK Board of Directors revised the distribution of BFR funds in where the first \$150,000 realized were forwarded to LWC. All remaining funds were to be forwarded to IRF and their partners in Indonesian rhino conservation, including the AAP program.

On 2 October 2007, the AAZK Board of Directors received a proposal from IRF and the BFR Coordinator to eliminate the practice of sending two separate checks to both the AAP program and IRF, since AAP was already turning over their share to IRF. The AAZK Board of Directors, after discussions with both the AAP Director and IRF, agreed to this proposal for 2008. However, it was also decided that the AAZK Board of Directors would make a complete analysis of the BFR program and the allocation of BFR funds during the business year of 2008.



**AMERICAN
ASSOCIATION
of ZOO KEEPERS**

A New Administrative Directive (AD) of the AAZK Board of Directors

Based on the analysis of the Bowling for Rhinos program and the allocation of BFR funds, the AAZK Board of Directors decided to make the following change to AD 7.02-1 in the AAZK Operations Manual, effective in 2009:

Lewa Wildlife Conservancy (LWC) is the original beneficiary of the Bowling for Rhinos event and therefore AAZK shall endeavor to provide primary funding to LWC on an annual basis by segregating the first \$160,000 (US Funds) raised from a BFR event to directly benefit LWC. In the event that the \$160,000 (US Funds) target *is not* achieved, LWC shall receive any and all BFR funds raised from the event in that calendar year.

Once (if) the \$160,000 plateau has been achieved, AAZK shall divide the remainder of BFR funds based upon percentage under the following distribution guidelines to the following entities adopted and ratified by the AAZK Board of Directors:

International Rhino Foundation	50%
Lewa Wildlife Conservancy	40%
Cheetah Conservation Fund – Kenya	8%
AAZK Inc Conservation Resources	2%

All funds are to be held on account in the name of AAZK, Inc., but are restricted from distribution to any other means. Monies on deposit shall be forwarded to the adopted entity in a manner specified by the conservation entity and disposition of funds shall be subject to a full and complete financial annual accounting report forwarded to AAZK, Inc. by the recipient.

AAZK, Inc. shall hold title to 2% of the BFR funds raised in excess of \$160,000 (US Funds) and shall keep said funds on deposit until June of the year following the BFR events. During that time, AAZK shall advertise in acceptable media the availability of conservation funds for distribution to recognized conservation projects. Affiliation or partnership with AAZK is not required, but preference may be given to AAZK Members or Conservation Partners. Preference for funds distribution shall be given in the following manner:

- In-situ* Rhino Conservation and Research
- Ex-situ* Rhino Conservation and Research
- In-situ* Community, Educational or Medical Programs (Africa or Asia)
- In-situ* Species Conservation (unrestricted)

All funds shall be distributed by vote of the AAZK Board of Directors, with recommendation and research performed by the AAZK Conservation Committee, from the AAZK Conservation Resource account by 30 June of each calendar year. If AAZK, Inc. does not receive any funding application(s), does not choose to fund any application(s), or if funds remain on account, those funds will be deposited in the following year's BFR account for pool distribution according to the listed percentages.

Justification

The AAZK Board of Directors invested significant time and resources in setting the future direction of BFR. Many factors went into the decision-making process, and we are unanimously pleased with the direction that has been set. First, we wanted to insure that our initial commitment to LWC remained secure. By setting aside the first \$160,000 for LWC, we insured that the original \$150,000 + \$10,000 from the Blue Rhino® sponsorship remained designated for LWC. Additionally, another 40% of the remaining funds will strengthen our commitment to LWC.

Secondly, by removing the AAP program from the equation, the AAZK Board of Directors felt it presented the opportunity to increase BFR's impact in conservation and meet some past requests and recommendations of the AAZK membership. AAZK remains committed to IRF and the preservation of rhino species worldwide. We have not decreased the funding originally designated for IRF, but rather we are re-investing funds that were designated for the AAP program. Fifty percent of all remaining BFR funds (after the original commitment to LWC) are designated for IRF. IRF has also been encouraged to apply for the new AAZK Conservation Resources grant.

The addition of the Cheetah Conservation Fund (CCF) - Kenya as a beneficiary of BFR funds was given careful consideration. CCF has established a long history of conservation partnership with AAZK, Inc. and its Chapters. A couple years ago, one Chapter presented a proposal to the AAZK Board to institute a second national fundraising event to support CCF. The Board conducted a survey of AAZK Chapters to determine if Chapters felt they could successfully support two national fundraisers. While some Chapters felt they could host two national fundraisers, others expressed they would need to choose between the two. Not wanting to negatively impact our flagship conservation project, the Board decided not to endorse a second national fundraiser, although we encouraged Chapters wanting to support CCF to do so.

By adding CCF to the beneficiary list of BFR funds, we felt it addressed the membership's desire to support another long-term Conservation Partner of this Association. Additionally, CCF-Kenya operates in areas surrounding LWC. The AAZK Board felt that by strengthening the conservation effort in areas surrounding LWC, we were ultimately making LWC stronger as well. Finally, by adding another internationally-recognized and well-respected conservation organization such as CCF to the BFR team, we feel we have added even more credibility and fundraising power to the tremendously successful BFR program.

One of the original visions of BFR was to use the program for the protection of all rhino species. By designating 2% of BFR Funds (after the commitment to LWC) to the new AAZK Conservation Resources Fund, we intended to open the door for support of Indian (one-horned rhinos). The matrix for fund distribution of the 2% will be weighted towards *in-situ* rhino conservation and research, including one-horned rhinos. The AAZK Board of Directors feels the new Administrative Directive supports the original vision of supporting all species of rhinos.

The best conservation programs involve long-term commitment. Since 1990, AAZK's Bowling for Rhinos has been one of the world's most successful conservation programs, raising over \$ 3 million for rhino conservation and all species that share rhino habitat. AAZK remains committed to its Conservation Partners, specifically LWC, IRF, and CCF. To reaffirm, 100% of BFR funding is being spent on conservation programs, with 98% designated specifically for conservation projects within rhino habitat. The remaining 2% of uncommitted funds is weighted heavily to favor rhino conservation programs, and will hopefully allow us to support conservation of the one remaining species of rhino not currently supported by BFR. We feel the new Administrative Directive strengthens the BFR program, supports the original vision of BFR, and will provide the opportunity for the continued growth and success of BFR. Feel free to contact me at shane.good@azak.org or Executive Director Ed Hansen at zed@cox.net with any questions regarding BFR and the new Administrative Directive. Finally, I want to personally thank BFR Coordinator Patty Pearthree for the incredible work she performs in leading this national fundraiser, and all of the Chapters and individual members of AAZK who make this annual event one of the world's most successful conservation programs.

Sincerely,



Shane Good
President, AAZK, Inc.
Cleveland Metroparks Zoo



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AAZK Announces New Members

New Professional Members

Marie G. Leighton, **Reptiles on the Move** (NH); Julie Sabattis, **Rosamond Gifford Zoo at Burnet Park** (NY); Bria Stambaugh, **North Carolina Zoo** (NC); Jessica Demarco, **Naples Zoo** (FL); Adam Keniger, **Minnesota Zoo** (MN); Rachel Malstaff, **San Antonio Zoo** (TX); Martin Sawain, **Siegfried & Roy's Secret Garden & Dolphin Habitat** (NV); Kimberly Millsbaugh, **San Diego's Wild Animal Park** (CA); Pamela Weber, **San Diego zoo** (CA); Margaret Rousser, **Oakland Zoo** (CA); Celess Zinsa, **Wildlife Safari** (OR). Beginning with the March 2008 issue of *AKF*, we no longer print the names of those Professional Members who do not list their facility on their membership application/renewal.

Renewing Contributing Members

John Rowdan, Central Park Zoo, NY, NY

Joan Roag, Medina, OH

Duncan Alexander, Geneva, IL

William H. Disher, San Diego, CA

Gloria K. Kahn, Camarillo, CA

Stephen Zydek, Bellevue, WA

Renewing Commercial Members

Premium Nutritional Products, Mission, KS

David R. Morris, President

Renewing Institutional Members

Boonshaft Museum of Discovery, Dayton, OH

Mark Mazzei, Curator of Live Animals

Black Pine Animal Park, Albion, IN

Karen Hoag, Founder

Columbian Park Zoo, Lafayette, IN

Claudine Laufman, Director

Miller Park Zoo, Bloomington, IL

John Tobias, Director

Scovill Zoo, Decatur, IL

Mike Borders, Director

Omaha's Henry Doorly Zoo, Omaha, NE

Dr. Lee Simmons, DVM, Director

Dallas Zoo, Dallas, TX

Greg Hudson, Director

Santa Barbara Zoo, Santa Barbara, CA

Rich Block, CEO/Director

New ADT Form Available Online

Do you remember the days when you were transferring an animal to a new facility and had to fill out three different ADT forms? You were probably wondering why some of the information on the forms was redundant, weren't you? Well, the redundancy is over! We all know how busy and stressful it can be when transferring animals between facilities. It can be very time consuming to fill out all of the paper work. In 2007, the Animal Training Committee of AAZK, Inc. combined all three forms into one easy-to-use form.

The Animal Data Transfer form is used when transferring animals from one institution to another. All of us have the same goal: to provide the best possible care for the animals for which we care. The information on the form provides the receiving institution staff with the right tools they would need to give that animal the best care possible. This form includes all the information someone would need about an animal from diet to behavioral history to training and enrichment history. The form can be found at www.aazk.org/animalkeeperform/datatransferforms.php.

AAZK encourages staff working with the animal prior to shipping to fill out the form. Your manager doesn't have to be the one to fill it out. Most of the time, the keepers know the animal's history the best. Any information you can give the receiving institution, no matter how small you may think it is, will be very helpful.

If you have any questions about the form, please contact Tammy Root, AAZK National Board Member, at troot@indyzoo.com



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CONSERVATION STATION

Responsible Consumers' Conservation Gift Guide

*Submitted by Julie Hartell-DeNardo¹, edited by Julie Izold²,
Penny Jolly³, Amanda Kamradt⁴, and Bob Cisneros⁵*

*¹Oakland Zoo, ²Cleveland Metroparks Zoo, ³Greater Orlando AAZK Chapter,
⁴Greater Houston AAZK Chapter, and ⁵San Diego Zoological Society*

The season of gift giving will soon be upon us. Most readers of *Animal Keepers' Forum* are animal lovers and conservation-minded individuals. We should honor our values when choosing to purchase gifts for others. When we offer a gift that benefits the environment or humanitarian efforts, we create more awareness of the many important issues that affect the world today. We help to create change on our planet by purchasing items that are sustainable, cost-effective, and ecologically responsible such as bamboo products. We help preserve habitat by refusing to purchase items that damage the environment such as products containing palm oil. The Conservation Committee of AAZK, Inc. asks you to consider giving a gift that gives to the receiver and to the animals and habitats we all treasure. Below are some companies and organizations that may offer the perfect gift for someone you know.

AAZK, Inc.

What: Logo merchandise, "Keeper Profiles" DVD

For: Fellow zookeepers

Where: www.aazk.org

Cause: Organizational support

Cost: \$2-60

Blue Iguana Recovery Program

What: Clothing, office supplies, mugs, holiday items, art, membership.

For: Iguana and reptile lovers.

Where: www.blueiguana.ky

Cause: Conservation program for habitat restoration, and propagation for release of blue iguanas.

Cost: \$9-1000

Bundongo Conservation Field Station

What: Adopt a chimpanzee, donations.

For: Chimp Lovers

Where: www.budongo.org

Cause: Chimpanzee research and snare removal in Uganda.

Cost: \$20-40

Center for Ecosystem Survival

What: Adopt an acre

For: Anyone interested in habitat preservation.

Where: www.savenature.org

Cause: Habitat preservation

Cost: \$15-130

Cheetah Conservation Fund

What: Membership, sponsorship, cheetah merchandise

For: Anyone, cheetah enthusiasts

Where: www.cheetah.org

Cause: Cheetah conservation

Cost: \$10-\$5,000

Ecotours

What: Travel/tours.

For: Travelers, responsible tourists.

Where: www.ecotours.com

Cause: Responsible eco-tourism, supports local conservation efforts and minimal impact travel

Cost: \$3,000-8,500

Global Exchange

What: Chocolate, coffee, clothing, jewelry, paper products, crafts, books, special occasion gifts,

For: Anyone, anytime, conscientious consumers.

Where: <http://store.gxonlinestore.org> or stores in San Francisco & Berkeley.

Cause: Fair-trade goods (environmentally sustainable goods made by low-income artisans)

Cost: \$10-150+

Greenzer

What: A wide range of eco-friendly merchandise

For: Anyone

Where: www.greenzer.com

Cause: environmentally conscious shopping

International Reptile Conservation Foundation

What: Membership with journal subscription, gear with logo.

For: Reptile and Amphibian Lovers

Where: www.IRCF.org

Cause: Conservation and research that supports the survival of threatened reptiles and their habitats.

Cost: \$16-75

Jane Goodall Institute

What: Art, DVD/video, books, clothing, bags, jewelry, coffee, chimp guardian sponsorship, membership, special program donations.

For: Anyone, chimp lovers.

Where: www.janegoodall.org

Cause: Chimpanzee conservation thru research, habitat protection, education, and other programs.

Cost: \$10-1,000

Keystone Conservation

What: Art, cards, children's book, video, membership, adopt a ferret.

For: North America Conservationists, predator fans

Where: www.keystoneconservation.us

Cause: Conservation of 14 predator species through research and political protection efforts.

Cost: \$9-100

Mountain Lion Foundation

What: Books, magnets, coffee mugs, calendars, art, cards, adopt a mountain lion, membership.

For: Mountain Lion Lovers

Where: www.mountainlion.org

Cause: Protect mountain lions and their wild habitat.

Cost: \$3-35

Nova Natural Toys and Crafts

What: Fun, creative, natural toys and products

Where: www.novanatural.com

For: Children

Cause: organic, fair-trade, healthy children

Cost: \$10+

Polar Bears International

What: Membership or polar bear merchandise to purchase.

For: Anyone interested in polar bear preservation.

Where: www.polarbearsinternational.org

Cause: Polar bear preservation

Cost: \$1.75-1200

Project Tamarin

What: Eco-mochilla, round bags, magazine bags, beach bags, hats, coasters, purses, donations.

For: Anyone, Tamarin lovers

Where: www.proyectotiti.com

Cause: Economic alternatives for local communities, Cotton-top Tamarin conservation awareness

Cost: \$10-40

Saving Wild Tigers

What: Donation

For: The tiger lover with everything

Where: www.savingwildtigers.org

Cause: Volunteer run organization that protects tigers and the communities living with wild tigers.

Cost: \$100-5,000

Snow Leopard Trust

What: Art, pet-toys, rugs, hats, bags, knitwear, membership, adopt a snow leopard, donations.

For: Anyone, Snow Leopard lovers, conscientious consumers.

Where: www.snowleopard.org

Cause: Sustainable herding practices in Snow Leopard habitat, preservation of habitat.

Cost: \$3-145

SunNight Solar

What: Solar powered flashlight, gift certificate.

For: Campers, home use, keep in the car.

Where: www.sunnightsolar.com

Cause: For each light bought one is given to a cause of your choosing, reduces battery waste, reduces fuel burning and associated pollution.

Cost: \$25

Thanksgiving Coffee Company

What: Organic, fair-trade coffee, gift baskets, organic hot-chocolate, chocolate bars, coffee accessories.

For: Coffee drinkers, chocolate lovers, gorilla fans, bird watchers, conscientious consumers.

Where: www.thanksgivingcoffee.com or some Safeway stores.

Cause: Gorilla conservation, bird conservation, habitat preservation and fair-trade goods,

Cost: \$3-60

Thirteen Mile Lamb and Wool Company

What: Sweater, clothing, hats, mittens, scarves, blankets, yarn and meat.

For: Anyone.

Where: www.lambandwool.com

Cause: Certified organic, predator-friendly, habitat aware farmers

Cost: \$8-185

Ventana Wildlife Society

What: Membership, donation, adopt a condor.

For: California Condor lovers

Where: www.ventanaws.org

Cause: Monitoring condor population, restoration projects and education.

Cost: \$50-5,000

Wild Camel Protection Foundation

What: Books, t-shirts, cards, prints, DVD/video, sponsorship of a wild camel, membership.

For: Camel lovers.

Where: www.wildcamels.com

Cause: Protection of critically endangered wild Bactrian camel and its habitat.

Cost: \$8-33

Wildlife Conservation Network

What: Donation

For: Conservation fans

Where: www.wildnet.org

Cause: Support of in-field conservationists and researchers who work with local communities.

Wildlife Works

What: hot, hip T-shirts that are good for the planet

Where: www.wildlifeworks.com

For: All

Cause: Elephants, Cheetahs, Humans, etc. in Kenya

Cost: \$25+

World of Good

What: Ethically sourced gifts

Where: www.worldofgood.org

For: All

Cause: Fair-trade and in support of projects

Cost: \$10+

The Conservation Committee would like to thank AAZK member Julie Hartell-DeNardo for compiling the Responsible Consumers' Conservation Gift Guide, sharing it with us, and allowing us to feature it in our column. We welcome and encourage submissions for Conservation Station by readers of Animal Keepers' Forum. Submissions may be sent to committee co-chairs Penny Jolly at jollyhome@verizon.net and Amanda Kamradt at amanda_kamradt@yahoo.com.

We would also like to thank Chad Harmon for designing the heading for Conservation Station, and regret that we failed to acknowledge him in our September edition.



Reduce • Reuse • Recycle

The Formation of an All-Male Group of Red-capped Mangabeys at Brookfield Zoo - Part 1

By Sheila Wojciechowski
Senior Keeper, Primate Department
Brookfield Zoo, Brookfield, IL
sheila.wojciechowski@czs.org

Introduction:

Because most Old World monkeys are housed in one-male groups in captivity, a surplus of males tends to occur. Old World monkey SSP*s are experimenting with all male groups (AMGs). Limited information has been gathered about the formation of captive AMGs and factors that influence their success. This paper serves as a case study of the formation of an all-male group of red-capped mangabeys (*Cercocebus torquatus*). This paper presents the first part of the study which follows the group for 225 days after introduction to determine if the formation was successful, how dominance status developed and changed over time, and the effects of environmental change on the intraspecific interactions.

Methods:

Subjects

The focal animals of this study consisted of a group of five sub-adult red-capped mangabeys that arrived at Brookfield Zoo on 25 November 1997. At the beginning of this study, they ranged in age from 2 1/2 - 4 years old. Two individuals (M'Kenje and Rocket) are full brothers from Denver Zoo. These two individuals were hand-raised and introduced to surrogate mothers at approximately 60 days of age. They have always been housed together in a group without additional males. These two are referred to as the duo. The remaining three individuals (Jester, Linus, and Stormy) are half-brothers from Houston Zoo. They grew up in the same uni-male group, which consisted of their sire, several adult females, and their offspring. These three are referred to as the trio. The duo and the trio are considered different subgroups.

Name	Age (at introduction)	Weight (kg)	Subgroup
M'Kenje	4 yrs, 2 mo	6.8	Duo – full siblings from Denver Zoo
Rocket	3 yrs, 7 mo	5.6	
Jester	2 yrs, 9 mo	4.5	Trio – half siblings from Houston Zoo
Linus	3 yrs, 4 mo	5.6	
Stormy	3 yrs, 5 mo	5.2	

Table 1: Subjects of current study.

Study Site

The initial introduction took place in an off-exhibit holding area consisting of three interconnected enclosures, each measuring 4.8m long, 2.8m wide, and 2.8m tall (~15.8 ft. x 9.2 ft. x 9.2 ft.). Animals were housed here the first 32 days. Thereafter, the red-capped mangabeys were introduced to the large (40m long, 20m wide, 20m tall [~131.3 ft. x 65.7 ft. x 65.7 ft.]), naturalistic mixed-species exhibit. Also on the mixed species exhibit was 3.4 mandrills (*Mandrillus spinx*), 1.5 sooty mangabeys (*Cercocebus atys*), 3.3 black and white colobus (*Colobus guereza*), and 0.1 pygmy hippopotamus (*Hexaprotodon liberiensis*). Introductions to the exhibit and the other species was a very slow, gradual process (see Appendix A for introduction time-line).

Procedures

I collected data with two different sampling methods. I recorded the initiator and recipient of all affiliative, aggressive, and submissive behaviors using an all-occurrences sampling method (Altmann,

1974) for 25 minutes. At the same time, I recorded state behaviors such as grooming, playing, and neighbors (within two meters) of each of the red-capped mangabeys using instantaneous focal animal sampling (Altmann, 1974) at one minute intervals. Each of the five red-capped mangabeys was the focal animal for five minutes. I collected data three times per day during the following time intervals 9:30-10:30, 12:00-1:00, and 3:00-4:00 throughout all intraspecific and interspecific introductions and continued for 10 days after introductions were complete (120 days total). Thereafter, I collected data six times per week (two observations per time interval per week) for an additional 15 weeks. Throughout the seven months, I completed 335 data sessions, for a total of 139.6 observation hours.



The five subadult male red-capped mangabeys frequently sat together during introductions to other species.

(Photo: Sheila Wojciechowski)

Results and Discussion:

The formation of this all-male mangabey group was considered a success as they formed a cohesive group. No wounds occurred during this portion of the study (first 225 days the group was together). The frequency of aggressive behaviors were especially high the first three days. Thereafter, this rapidly decreased. Likewise the frequency of submissive behaviors (defined as presenting, retreating, and mounting) decreased over time (Figure 1).

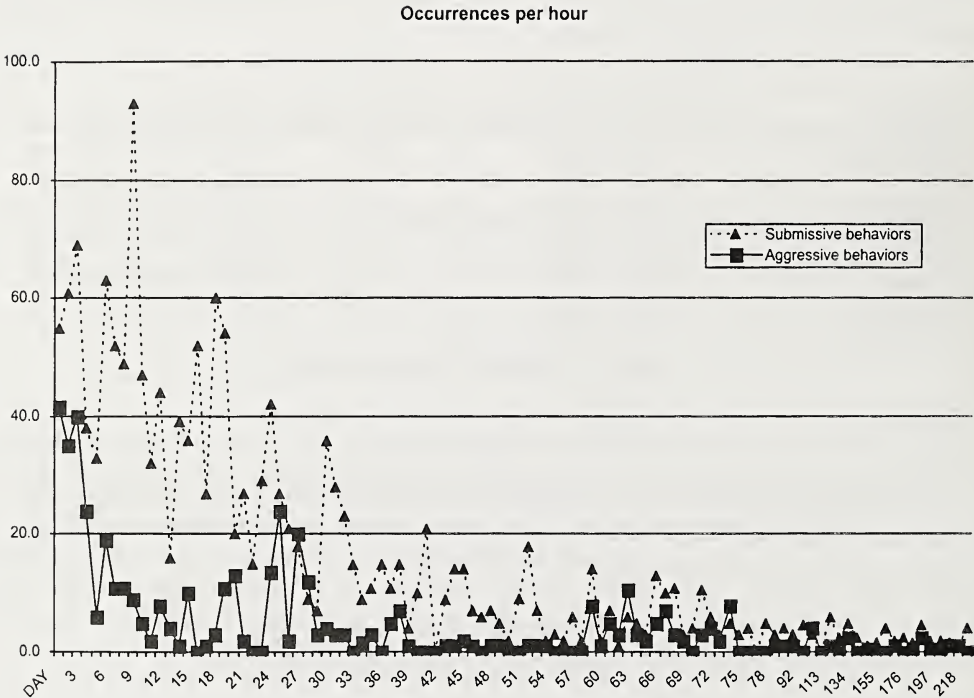


Figure 1: Frequency of aggressive and submissive behaviors throughout the study.

The dominance rank of the individuals did change throughout the study (Figure 2). The relative dominance status of each individual was calculated throughout the study based on the method presented by Zumpe and Michael (1986). This shows that the two individuals from Denver Zoo (which are older and larger in weight) maintained dominance over the three individuals from Houston Zoo. However, a change occurred within the trio in that Jester (the youngest and smallest individual) was able to move above Linus in dominance rank. This change seemed to occur because of the relationship Jester was able to form with the two dominant individuals from Denver Zoo. In analyzing the number of affiliative behaviors that occurred between the duo and each member of the trio, it is apparent that Jester exhibited more bouts of playing and grooming with Rocket and M'Kenje than did the other two individuals (Figure 3). Jester spent more time within two meters of the duo then did the other two individuals. Also, when a bout of aggression occurred within the trio, Rocket and M'Kenje backed-up Jester (i.e. Rocket or M'Kenje became aggressive towards Linus or Stormy).



Linus, red-capped mangabey, at age four years.

(Photo: Jim Schulz)

Also of interest is how the introduction to the other species in our mixed-species exhibit affected the red-capped mangabey group. The introduction to 19 individuals of three different primate species

was a slow process (see Appendix A for introduction timeline). Other studies (e.g. Alanso, 1982) have shown that the threat from an additional species may force a group of animals to cooperate more. There was a large increase in the amount of time the red-capped mangabeys spent within two meters of each other and a large decrease in the frequency of intraspecific agonistic behaviors on the first day the red-capped mangabeys were introduced to a new species (figure 4). However, this cooperation was not long-lasting. After the first day of the introduction, intraspecific agonistic behaviors increased and time spent near each other decreased to a level similar to that prior to the introduction.



Jester, red-capped mangabey, at age three years. (Photo: Jim Schulz)

Conclusion:

Overall, the formation of this group of five male red-capped mangabeys was successful. However, these individuals were not yet sexually mature. The study continued to document how the relations changed and necessary husbandry decisions were made. Watch for future issues to see if this bachelor group stayed together through adulthood (Part 2 in December 2008 *AKF*).

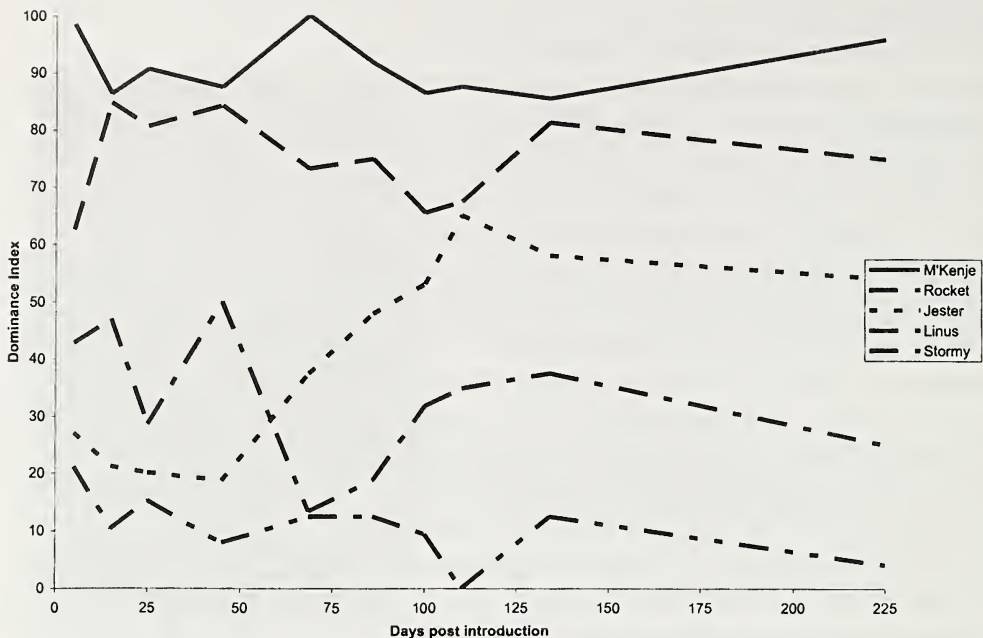


Figure 2: Change in dominance index over time.

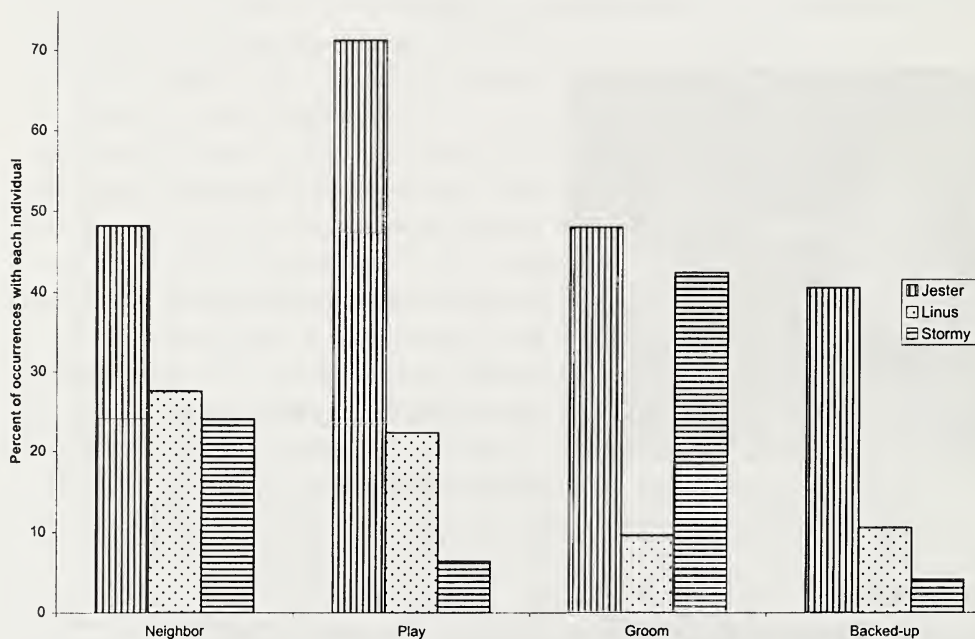


Figure 3: Frequency of affiliative behaviors between Jester and the duo, Linus and the duo, and Stormy and the duo.

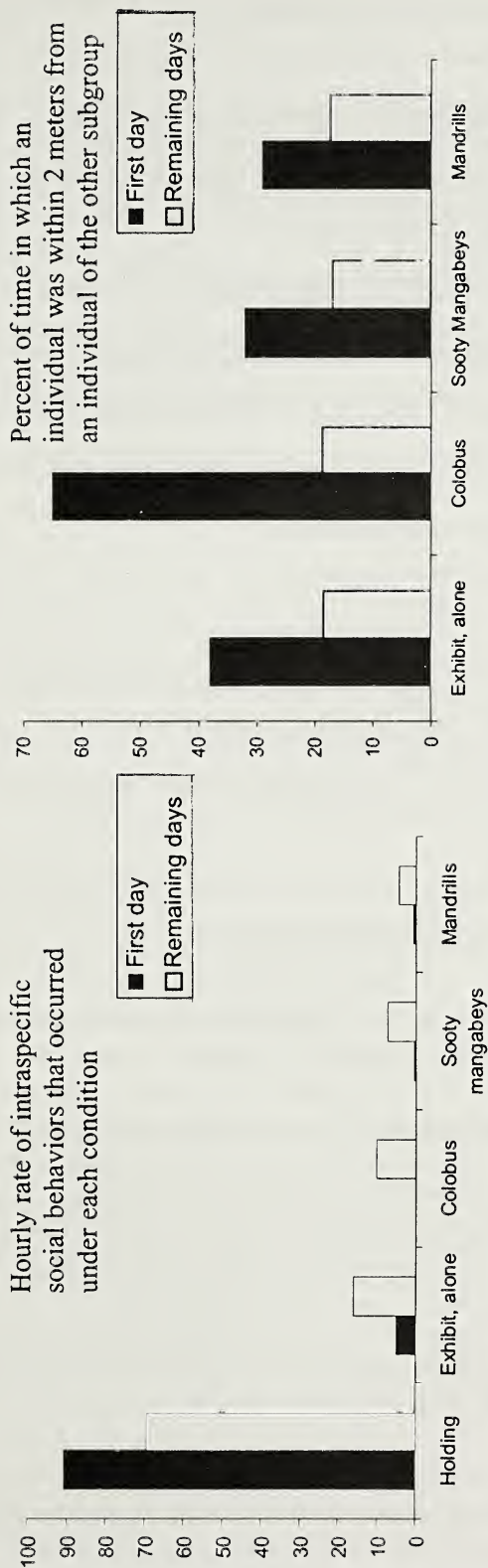


Figure 4: Agonistic behaviors and time spent near each other on the first day of an introduction and on all remaining days of being housed with that species.

Appendix A: Introduction Timeline

Date	Days post introduction	Event
24-Nov-97		Red-capped mangabeys arrived in quarantine. Auditory & olfactory contact. No visual or tactile contact.
24-Dec-97		Red-capped mangabeys moved to Tropic World holding area. Animals have auditory, olfactory, visual, and tactile contact
17-Jan-98	1	Introduced duo to trio
2-Feb-98	33	Introduced red-capped mangabeys to exhibit (alone)
17-Mar-98	61	Started introduction to colobus (done in 2 stages)
2-Apr-98	76	Started introduction to sooty mangabeys (done in 3 stages)
16-Apr-98	85	Started introduction to mandrills (done in 11 stages)
7-May-98	110	Introductions complete

References:

- Alonso, E. Primates in Mixed Exhibits at the Los Angeles Zoo. AAZPA ANNUAL PROCEEDINGS. 239-243, 1982.
- Altmann, J. Observational study of behavior: sampling methods. BEHAVIOUR 49: 227-267, 1974.
- Zumpe, D; Michael, R. Dominance index: A simple measure of relative dominance status in primates. AMERICAN JOURNAL OF PRIMATOLOGY 10: 291-300, 1986.

ATTENTION PHOTOGRAPHERS !!



We would like to begin putting together a library of photographs to be utilized in *Animal Keepers' Forum* either as an occasional four-color cover or in conjunction with material inside the journal. We plan to gather this photo library electronically in jpg or tif formats. Past President Denise Wagner will be gathering and organizing this photo archive and photographers interested in submitting photos should send them to her at denise.wagner@aazk.org. Photos should be high resolution and in either jpg or tif format. When sending, please include common and scientific name of species featured in photo.

Each photo must be accompanied by a Photo Release Form that is available on the AAZK website. You may submit the form electronically to Denise or print it out, obtain required signatures and send by regular mail to Susan Chan, AAZK, Inc., 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054 Attn: photo release.

AAZK, Inc. does not pay for photographs, but will give appropriate photo credit to individual photographers and/or institutions whenever a photo is utilized and a copy of the *AKF* issue in which the photograph appears will be sent to the photographer.

The Animal Training Committee Presents

Training Tales...



Where you can share your training experiences!

*Training Tales Editors – Jay Pratte, Zoo Atlanta; Kim Kezer, Zoo New England;
and Angela Binney, Disney's Animal Kingdom*

Team-training & Scent Station Training with Grant's Zebra (*Equus burchellii boehmi*)

*By Julie Hartell-DeNardo (julieh@oaklandzoo.org)
The Oakland Zoo, Oakland, CA*

In order to more effectively train each individual animal as well as to reduce aggression and displacement during training sessions a team-training program was initiated working on scent stationing with 1.3 Grant's Zebra. Station training was chosen to create more space between the individual zebras when training and move their focus from the trainer's location to the training session. Researching the literature indicated limited information on this species sight range and abilities, while work with scent trained horses involved in search and rescue/recovery has shown this sensory capability to be strong in equids. From these findings it was decided to try station training based on scent by creating visually identical stations of differing scents.

Purpose

The purpose of this training program was to address some of the difficulties training herd animals in a group setting. Specific objectives were to reduce stress due to separation, to increase the comfortable working distance between individuals, to reduce disruptive aggression and displacement behaviors during training sessions, and create a less competitive environment when training multiple individuals. The goal was to create a training program based on the dynamics of these animals, sensitive to the natural history of the species and the specific individuals in this group while considering the animals' sensory perception.

Introduction

Much of this training program has been designed with the natural history of the species in mind. In the wild the Grant's Zebra social system is two-tiered (Rubenstein & Hack, 2004). The first tier is a relatively stable social unit called the harem. A stallion, several females, and their dependent offspring make up the core social group. The second tier of social organization in this species, termed the herd, is made up of multiple harems. Herds are an unstable social unit with associations between the harems composing the herd changing frequently (Fischhoof & Rubenstein, unpublished).

This strong social affiliation is relevant to the training program chosen as it helps understand the stress associated with separation of group members. In the past, when an individual zebra had to be separated from the rest of the group, all members of the group would pace at the fence lines, vocalize and had reduced grazing time. This was stressful and not conducive to successful training opportunities.

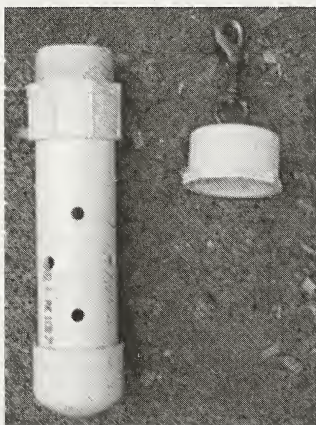
To avoid separation stress, training sessions were done along a fence line of the yard to which the entire group (1.3) had access. All zebra training at the Oakland Zoo is protected contact. When

training sessions were done by one trainer with all four zebra at a particular location, the behaviors were limited to approaching the fence and targeting to the end of a target pole. Even when training animals as a group it is still imperative to recognize the individual personality of each animal, and group social dynamics. Each zebra had a different sensitivity level to new situations, other individuals, and a varying attention span during training sessions.

As training progressed two main problems arose: crowding, displacement, and aggression between individuals; and competition to be closest to trainer and target pole. It was decided that station training would be the next step since it would allow more space between individuals, move their focus from the trainer's location to their station, and allow a trainer to progress to more complex behaviors while training with more than one individual at a time.

Scent Station Training

The sensory capabilities of an animal should be taken into consideration when planning components of a training program as it gives an indication as to what the animal may be able to perceive. Since zebra-specific information was not available, information from another equid, the domestic horse, (*Equus caballus*) was used as an approximation. While a horse's vision has limited color sensitivity and is less acute than a typical human's, research shows their sense of smell is much more sensitive. Horses have a long nasal cavity with a large area of olfactory receptors, as well as a vomeronasal organ (Riegal & Hakola, 2000). Further research on horses and their use in search work elaborated on the potential scenting abilities of equids, with horses being trained for scent detection of live humans, cadavers and even narcotic work (S. Martinez, personal communication, March 2005 & Nowacki, n.d.).

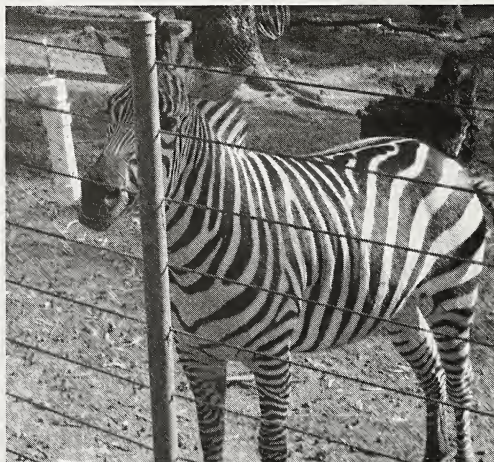


Scent station with cap off
(Photo: Julie Hartell-DeNardo)

From this sensory information it was decided to test if utilizing a specific scent as a marker for an individual station could be trained with this group of zebra. Stations were easily made out of 9" long [~23cm] segments of 2" diameter [5cm] PVC piping with multiple 1/4" drilled holes to allow scent to escape. One end was terminally capped as the bottom while the second (top) end has a screw cap installed, for facilitating insertion of scents. The top end had a clip attached that allows simple placement and movement of the station during training, which permitted flexibility and greater options in station location. Each animal was assigned a specific station scent. Extract scents commonly found at the grocery store were used. Station training went quickly with most of the zebra, once neophobia was overcome. Training started with the zebra approaching the station (no scents

were used at this point), and advanced to them touching it with their noses. But with only one set of eyes watching four noses it became apparent more eyes were needed to prevent frustration or resumed aggression between the zebra.

At this point a zebra training team was recruited. The program consisted of one primary trainer assigned to each individual zebra. The primary trainer does the majority of both novel and maintenance training sessions with that individual. Additional trainers fill in when the primary trainer is unable



Zebra at scent station (Photo: Julie Hartell-DeNardo)

to attend. The non-primary trainers work on established approximations and behaviors, as well as assist with habituating the zebra to multiple and varied people.

One of the first steps was discrimination training, specifically to teach each zebra to station only at their specific scented station. Blank stations (stations with no scent inside) as well as stations with other non-training-relevant scents were slowly introduced, while reinforcing the animal only if it went to its assigned station. Record keeping is exceptionally important in a team-training program. In order for everyone training with a specific individual to be on the same page, consistent universal training language and upkeep of records is essential. All training sessions are recorded and the records are kept at the training location to allow for quick reference prior to the next session.

With an average of two weekly training sessions, the initial station training took approximately two months. Discrimination training currently continues with an increasing diversity of distractions.

Results

Team training allows each zebra to have focused individual training sessions and has greatly increased the rate of progress in training behaviors. It has also increased the comfortable distance between the zebras, which has allowed for more complex behaviors, such as side presentation, tactile desensitization, directional movements, and potential scale training.

Both team training and station training have greatly reduced the aggression, displacement and competition seen during training sessions. Station training has created the opportunity for a single trainer to work multiple animals at a time (when the entire team is not available) by moving an animal's focus from its proximity to the trainer to the station, thus reducing competition between animals.

In conclusion, incorporating a species' natural history, while recognizing the individuality of each animal, can contribute to training success. Knowledge of an animal's potential sensory range can aid in determining components of a training program. Team training and station training can be effective means of increasing training session productivity while reducing negative behaviors when working with highly social species. Scents can effectively be used as a station indicator for equids.

Acknowledgements

I would like to thank and acknowledge the entire zebra training team including; Victor Alm, Margaret Rousser, Chris Allen, Lovesong Cahill, Stacy Smith, Scott Holub, and Alicia Powers. The time for this project would not have been available without generous help from all of the string #9 volunteers, interns and apprentices. I would also like to acknowledge Susan Martinez for her unending support and knowledge in the field of scent work. Additionally, I would like to express my gratitude to the Oakland Zoo, and specifically Colleen Kinzley, for the abundant support of professional development and growth.

References

- Carrol, J., Murphy, C. J., Neitz, M., Ver Hoeve, J. N., Neitz, J. (2001). Photopigment basis for dichromatic color vision in the horse. *Journal of Vision*, 1, 80-87.
- Equine Vision. (2008). Retrieved March 2, 2008 from http://en.wikipedia.org/wiki/Equine_vision
- Hanggi, E. B., Ingersoll, J. & Waggoner, T.L. (2007). Color vision in horses: deficiencies identified using a pseudoisochromatic plate test. *Journal of Comparative Psychology*, 121(1), 65-72.
- Nowacki, T. (n.d.). Scent detection horses. Retrieved February 12, 2008, from www.airscentinghorse.com
- Riegall, R. J. & Hakola S. E. (2000). *Illustrated atlas of clinical equine anatomy and common disorders of the horse*. Marysville, OH. Equistar.

ATC Comments: Jay Pratte, Zoo Atlanta

We were particularly taken with the novel approach taken with the zebra group. Natural history and species-specific sensory acuity are always important aspects to consider when designing a training program. A problem-solving approach to group management was applied with success, and this scenario provides an excellent example of how consistent communication and implementation of training results in a successful program for not only the animals, but ALL of the staff involved. Achieving training goals are made easy by creating a relief trainer or secondary trainer system, allowing training to continue without the primary trainer being present. Relief trainers maintaining established behaviors and approximations help to solidify the foundation of the training program. Team training sets trainers up for success, giving each member of the team a feeling of ownership for the program as a whole rather than for just one's primary animal.

The potential applications for this type of "alternative sensory" training (i.e.- not just visual) are boundless, and also illustrates how keepers could train in non-traditional situations. For example, working with blind animals? Use scent and sound. Deaf? Use light instead of a clicker; or tactile, vibration, etc. The novel approach used in this paper struck me as intriguing, and rife with possibilities in other situations. Much as I detest the term, this is very much "thinking outside the box."

1st Publication: Hartell-DeNardo J. 2008. Team Training and Scent Stationing with Grants Zebra (*Equus burchellii boehmi*). Proceedings of the 2008 Animal Behavior Management Alliance Conference held April 27-May 2, 2008 in Phoenix, AZ.

2nd Publication: Hartell-DeNardo J. 2008. Team Training and Scent Stationing with Grants Zebra (*Equus burchellii boehmi*). Proceedings of the 2008 American Association of Zoo Keepers Conference held September 25-29, 2008, in Salt Lake City, UT.

How to Create Your Institution's Conservation Program: A Practical Guide to Implementation

Instructors: Beth Armstrong, Field Conservation Coordinator, Brevard Zoo; Rebecca Rose, Field Conservation Coordinator, Columbus Zoo; Anne Warner, Conservation Manager, Oregon Zoo; and Dr. Lisa Dabek, Director of Conservation, Woodland Park Zoo.

Date: 22 January 2009 - in conjunction with the Zoos Committing to Conservation Conference

Time: 8:45- 3:00

Cost: \$35 - Lunch provided

Space is limited to 40 participants

The intent of this one-day workshop is to illustrate easy methods that will encourage other zoos to create their own conservation commitment through allocation of funds, staff time and related materials. Our instructors will discuss the following topics:

- Creating your conservation philosophy
- How to design your application form
- Small grants vs. large grants
- Fundraisers
- Getting your Board on-board
- Creating educational materials
- What to expect from your field contacts
- What can your field researchers expect from you
- How your conservation commitment can attract donors

An overview of each of these institutions (Brevard Zoo, Columbus Zoo, Oregon Zoo, Woodland Park Zoo) philosophy, conservation grants and programs, problems and accomplishments will be discussed. A round-table discussion will follow lunch.

If you are interested in attending please contact the individuals below to have them email you a form:

Beth Armstrong, elynn57@aol.com and priger@houstonzoo.org

Cell: 614 506 7368

Brevard Zoo, 8225 N. Wickham Rd., Melbourne, Florida, 32940

A Nutritionally Supported Herd-Reared Male Sable Antelope at Disney's Animal Kingdom

By

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Introduction

In 2006, sable antelope (*Hippotragus niger*) at Disney's Animal Kingdom were recommended for breeding by the North American Regional Population Management Plan. Three of the five females were successfully bred and in March of 2007 two female calves were born and reared by their dams. On 9 June 2007 we observed the third female, "Sprite", experiencing a difficult labor. Veterinary intervention was needed and a decision was made to immobilize her. The calf was positioned incorrectly, successfully pulled from the dam and determined to be a male, later named "Onyx". The calf and dam were introduced after "Sprite" recovered from anesthesia. We were concerned about the effects that immediate post-partum separation may have had on the quality of maternal care. Therefore, observations were conducted continuously that day. It was observed that although the dam stimulated him to defecate and urinate, she refused his nursing attempts. To insure passive transfer of immunoglobulins the calf was tube fed bovine colostrum during his neonatal exam the next morning. To encourage nursing by behavioral example, the dam and calf were housed under constant observation with a nursing calf and her dam from the March births. A decision was made to present "Onyx" a bottle, to provide nutritional support while managing him in the herd, when he was not observed to have nursed by mid-day. Other zoological institutions have reported pulling calves for hand-rearing then reintroducing the calves to the herd at approximately day ten (Read, 1982 and Read, Noble 1984). Due to the aggressive nature of hand-reared antelope, as well as adult male sable, we felt it was important that "Onyx" be managed as a member of the herd to minimize imprinting on his care staff. Therefore, "Onyx" became a nutritionally supported herd-reared male sable.

Housing

Mother and calf were housed in the sable. This area consisted of six outdoor stalls and were chainlinked fencing, standing 8 feet woven through to create a visual barrier. Each that two adjacent stalls could create a round-and "Onyx" were housed in AP07, often with the other herd members were on exhibit. housed in AP07 H07 overnight with visual and other females in the herd who had access to overnight. This allowed members of the herd be familiar with the calf before introductions.

Diet

From the day of his birth, a weight-based diet protocol was provided by the nutrition staff at Disney's Animal Kingdom (Table 1). The protocol was adjusted according to the calf's

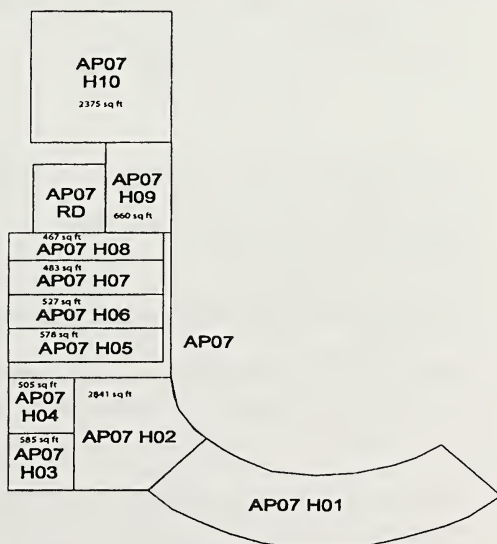


Fig. 1 - APO7 Sable/Tamer Pens

consumption and eagerness at each feeding. Purina Pro Nurse™ (Land O’Lakes Purina® Feed LLC., St Louis, MO) was chosen as the milk replacement for the duration of the feeding period. On Day 2 the calf was offered 20% Pro Nurse™ and 80% bovine colostrum. From Day 3 to 4 the formula was 50% Pro Nurse™ and 50% bovine colostrum. From Day 5 to 7 the formula was 90% Pro Nurse™ and 10% bovine colostrum. Day 8 through weaning he was offered 100% Pro Nurse™. The Pro Nurse™ was mixed with warm water (distilled until one month of age) at a 1:4 ratio powder to water. A summary of his consumption has been provided in Table 2.

Table 1 - Sable Antelope Proposed Rearing Protocol (Prepared 2 March 2007)

Day	Ingredient	% of diet	Preparation	Amount to feed	# of feedings	Additional Information/Comments
1	Colostrum	100	No preparation required	10% BW	6	Adjust amounts and # of feedings as required
2 to 4	Colostrum	50	No preparation required	10-12% BW **	6	Provide small amounts of alfalfa
	*Pro Nurse	50	250g powder to 1 litre warm dist water			
5 to 7	Colostrum	10	No preparation required	10 - 12 % BW	6	Continue to offer alfalfa
	Pro Nurse	90	250g powder to 1 litre warm dist water			
Week 2 to 1 month	Pro Nurse	100	250g powder to 1 litre warm tap water	10 - 12 % BW	6	Expose to "clean" sable feces for introduction of gut flora
	milk pellets or calf manna		No preparation required			Start to offer small amounts of pellets
1 to 2 months	Pro Nurse	90	as above	10% BW	5 or 6	Mix milk pellets with wild herbivore pellets
	switch to wild herbivore	10				Offer hay
2 to 3 months	Pro Nurse	decrease	as above	reduce bottle	drop 1	Offer more solid foods
	wild herbivore pellets	increase		feeds and	bottle every	
	or cubes			increase solids	week to	
	hay - alfalfa and timothy				10 days	

*Purina Pro Nurse™ (Land O’Lakes Purina® Feed LLC., St. Louis, MO) **Pro Nurse™ amounts are a starting point. We may need to increase or decrease the concentration as dictated by the needs of the animal. Please report growth and intake to the Animal Nutrition Center so that we can adjust the amounts as needed.

“Onyx” was trained to shift for a bottle and stand on a scale before receiving his first feeding each day (Figure 2). The resultant weight determined the total daily volume offered. Therefore, the volume increases took effect at the next feeding through the following morning. After the initial tube-feeding, the calf was bottle-fed 100% bovine colostrum five more times that first day. We were encouraged at his eagerness to feed and acceptance of the lamb nipple we chose for the bottle. Initially there were six feedings, distributed evenly over a 15-hour period of staff availability. On 16 June 2007, we began observing bottle refusals and a decrease in the calf’s consumption. We thought the feedings may have been too close together causing a decreased appetite. One feeding was therefore eliminated. At five feedings a day “Onyx” continued to have poor consumption each day so we eliminated another feeding. At four feedings a day he refused a bottle daily. He averaged a consumption of 7.85% his body weight and continued to gain weight during this period. In hopes of increasing his total daily consumption we offered him three bottles a day totaling 10% his body weight in volume.

The midday feeding was offered at the hottest part of the day. To combat the possible heat associated loss of appetite his mid-day bottle was decreased to 20% of the total daily volume offered. The percentage change in daily formula distribution did not have the desired effect. His total daily consumption continued to fluctuate and he refused five of 12 midday feedings. At three feedings a day his average daily consumption decreased to 7.32%. We again readjusted the feeding schedule and decreased his feedings to twice daily in hopes of better consumption. Although we offered “Onyx” 10% of his body weight in volume, his consumption rarely met this dietary goal throughout the rearing process. With evidence that he continued to gain weight daily and a discussion with our animal nutrition staff, a decision was made to offer the calf 8% of his body weight in total daily volume; this proved to meet his consumption needs.

On 9 August 2007 “Onyx” began the weaning process. The total daily volume was calculated based on protocol, assuming his current daily volume was offered over five feedings a day, removing the volume of one bottle (669mL). He remained at two feedings per day until completely weaned. Volume reductions occurred every ten days with the total daily volume adjusted by decreasing 669mL, an amount consistent with the reduction of one feeding. “Onyx” was weaned on 19 September 2007. Throughout the rearing process he had continuous access to the adult diet, consisting of Wild Herbivore small pellets 5MM7™ (PMI Nutrition International, LLC, Brentwood, MO, 63144) and a combination of Timothy, alfalfa and Bermuda hay. “Onyx” was observed to be consuming small amounts of both hay and grain by late June though amounts consumed were not recorded.

Method of feeding

A bottle extension provided us with the means to manage “Onyx” as a member of the herd and provide sufficient nutritional support. This extension was made of PVC piping. A large cow nipple was modified to attach to the bottle and one end of the extension. The same lamb nipple that was used to initiate bottle-feeding was placed over the output end of the extension (Figure 2). This served two purposes for us. The extension primarily minimized our visual contact and eliminated our physical contact with “Onyx”, allowing us to follow a complete hands-off protocol. Additionally, the extension enabled us to accommodate the volume increases, and need for larger bottles, without regard to the effect changing a nipple may have had. The initial use of this began on 20 June 2007. Before the extension was ever put to use, the calf was clicker trained to shift for his bottle. From Day 1 the keepers placed a scale in his adjacent stall each morning, cued with a clicker, waited for him to shift, got a weight and then began feeding. The same was true for feeding with the extension; the keepers cued with a clicker, waited for a response and then placed the extension through the fence where the calf could reach it (Figure 2). The hands-off protocol was implemented on 26 June 2007, when he was consistently responding to the clicker and shifting to the scale.

Figure 2



2a - Calf standing on the scale feeding from the bottle extender.

All photos were taken in the off-exhibit sable holding area at Disney's Animal Kingdom.

Photos by Animal Program Staff at DAK



2b - Bottle Extender.



2c - Keeper behind visual barrier feeding the calf with the bottle extender.

Introductions

Due to his birth occurring outside the herd and the time required to insure his good health and bond with his dam, being managed in the herd was a process of introductions. "Onyx" was introduced to small groups of the remaining herd in the holding yard only. In the presence of his dam "Onyx" was initially introduced to one mother and calf and separately to one dominant female in the herd. A small group introduction was done all day on 18 June 2007 to both mother and calf pairs without incident. "Sprite" and "Onyx" were still separated from the group that evening. The small group introductions were done to deter aggression.

Introductions between a new animal and the existing herd is sometimes problematic (as described by Read, Noble 1984) because the existing herd often threatens the introduced member forcing a group fight and limiting a one-on-one interaction. The animal care staff was aware that the calves' births could have caused more aggression and discreet changes in the herd dynamic. A reintroduction of the same animals occurred the following day. Though aggression was observed towards "Onyx" from a different dam, no injuries were incurred. He and the dam remained housed with the females successfully overnight and thereafter starting 3 July 2007. The breeding male, that was housed separately overnight in AP07 H03 for monitoring his medication consumption, was introduced to "Onyx" without incident in the presence of "Sprite" on 15 July 2007. At this point the entire herd could be housed together without problems.

"Onyx" was introduced onto the 26-acre [~0.4 ha] savannah exhibit with the herd on 13 August 2007. He became separated from the herd and was brought into the holding area alone. The herd was reunited with him later that day in holding. His next introduction onto the savannah occurred two days later. "Onyx" remained with the group and shifted into the holding area with them on cue. The calf still responded to his clicker cue for feeding when the rest of the herd did not respond to their established shifting cue. In this situation he accepted bottles through the gate leading out to the exhibit.

Table 2 - A Consumption Record for 1.0 Sable Antelope “Onyx”

Date	Age	BW	Intake	% BW	# of	Comments
	in days	(kg)	(mL)	consumed	feedings	
9-Jun-07	0					Date of birth
10-Jun-07	1	19.3	1745	9.04	6	100% colostrum (5 bottles, 1 tube feed); Offered 10%BW
11-Jun-07	2	18	1652	9.18	6	80% colostrum, 20% pro nurse; Poor fourth feeding
12-Jun-07	3	19.3	1980	10.26	6	50% colostrum, 50% pro nurse
13-Jun-07	4	20	2092	10.46	6	Fair third feeding; Offered 11%BW
14-Jun-07	5	20.7	2212	10.69	6	10% colostrum, 90% pro nurse; Fair fourth feeding
15-Jun-07	6	21.5	2349	10.93	6	
16-Jun-07	7	22.5	2044	9.08	6	Refused sixth feeding
17-Jun-07	8	21.8	2012	9.23	6	100% pro nurse; Refused fourth feeding
18-Jun-07	9	22.5	1553	6.90	5	Reduced to 5 feedings; Refused second feeding, poor fifth feeding
19-Jun-07	10	22.5	1980	8.80	5	Refused third feeding
20-Jun-07	11	22.8	2001	8.78	5	Refused third feeding
21-Jun-07	12	23	2020	8.78	5	Refused fourth feeding
22-Jun-07	13	23.2	2110	9.09	5	Poor third feeding
23-Jun-07	14		2424	10.40	4	Reduced to 4 feedings per day
24-Jun-07	15	24.1	1964	8.15	4	Refused third feeding
25-Jun-07	16	25.6	2071	8.09	4	Refused third feeding
26-Jun-07	17	25	2112	8.45	4	Refused third feeding
27-Jun-07	18	26.1	2140	8.20	4	Refused third feeding
28-Jun-07	19	26.3	1364	5.19	4	Refused second and fourth feedings; Observed eating grain
29-Jun-07	20	25.5	2169	8.51	4	Refused fourth feeding; Observed eating hay
30-Jun-07	21	27.7	1641	5.92	4	Poor second feeding, refused fourth feeding
1-Jul-07	22	26.8	2798	10.44	3	Reduced to 3 feedings per day
2-Jul-07	23	27.9	2040	7.31	3	Refused second feeding
3-Jul-07	24	29.3	2288	7.81	3	Began offering 40, 20, 40%; Refused second feeding; Offered 10%BW
4-Jul-07	25	29.9	1847	6.18	3	Poor third feeding
5-Jul-07	26		1254	4.20	3	Poor first feeding, refused third feeding
6-Jul-07	27	29.6	2944	9.90	3	Fair second feeding
7-Jul-07	28		2392	8.10	3	Refused first feeding
8-Jul-07	29	30.5	1196	3.90	3	Refused second and third feedings
9-Jul-07	30	29.6	2435	8.20	3	Refused second feeding
10-Jul-07	31		1955	6.60	3	Refused first feeding, poor third feeding
11-Jul-07	32	30.8	2319	7.50	3	Refused second feeding, fair third feeding
12-Jul-07	33	31.3	2484	7.90	3	Refused second feeding
13-Jul-07	34	30.4	2702	8.80	2	Reduced to 2 feedings per day; Fair first feeding
14-Jul-07	35	32.6	1604	4.90	2	Poor first feeding
15-Jul-07	36	32.1	2608	8.12	2	Started offering 8%BW
16-Jul-07	37	32	2608	8.15	2	
17-Jul-07	38	32.7	1308	4.00	2	Refused first feeding
18-Jul-07	39	33	1308	4.00	2	Refused second feeding
19-Jul-07	40	33.5	2660	7.90	2	
20-Jul-07	41	33.5	2680	8.00	2	
21-Jul-07	42		2680	8.00	2	

Date	Age in days	BW (kg)	Intake (mL)	%BW consumed	# of feedings	Comments
22-Jul-07	43	35.4	2756	7.80	2	
23-Jul-07	44	37.2	2904	7.80	2	
24-Jul-07	45	37.6	2897	7.70	2	Fair first feeding
25-Jul-07	46	37.1	3008	8.10	2	
26-Jul-07	47		1504	4.00	2	Refused first feeding
27-Jul-07	48		2558	6.80	2	Fair first feeding
28-Jul-07	49	37.6	3008	8.00	2	
29-Jul-07	50	38.1	3028	7.95	2	
30-Jul-07	51	39.3	2806	7.10	2	Fair second feeding
31-Jul-07	52	38.4	3144	8.20	2	
1-Aug-07	53	39.1	3050	7.80	2	Fair second feeding
2-Aug-07	54		3144	8.00	2	
3-Aug-07	55	40.8	3204	7.85	2	
4-Aug-07	56		1632	4.00	2	Refused first feeding
5-Aug-07	57		3264	8.00	2	
6-Aug-07	58	41.8	3240	7.75	2	Fair second feeding
7-Aug-07	59		3024	7.20	2	Fair second feeding
8-Aug-07	60		2264	5.40	2	Poor first feeding, fair second feeding
9-Aug-07	61		1672	4.00	2	Began weaning, first formula reduction; Refused second feeding
10-Aug-07	62	43.2	2675	6.20	2	
11-Aug-07	63		2675	6.20	2	
12-Aug-07	64	43.6	2675	6.10	2	
13-Aug-07	65		1338	3.00	2	Refused second feeding
14-Aug-07	66	44.3	2630	5.90	2	Fair first feeding
15-Aug-07	67		2610	5.89	2	Fair second feeding
16-Aug-07	68		2675	6.00	2	
17-Aug-07	69		2675	6.00	2	
18-Aug-07	70		2675	6.00	2	
19-Aug-07	71		2341	5.28	2	Second formula reduction
20-Aug-07	72	45.9	2006	4.37	2	Duplicate consumption record through 28-Aug-07
29-Aug-07	81		1675	3.65	2	Third formula reduction
30-Aug-07	82		1345	2.93	2	Duplicate consumption record through 7-Sep-07
8-Sep-07	91		673		1	Final formula reduction; Reduced to one feeding
9-Sep-07	92	54.2	673	1.24	1	Duplicate consumption through 19-Sep-07
19-Sep-07	102	56.2	673	1.2	1	Weaning process completed

Conclusion

Once weaned, and ever since, “Onyx” appears to pay very little attention to the keepers. He has been observed exhibiting normal sable calf behaviors, such as: play behaviors, flehmen responses and herd cohesion.

The goal of the staff was to successfully nutritionally support a male sable calf, with minimal to no imprinting on humans, allowing him every opportunity to learn normal sable behaviors while remaining a member of the herd. This would facilitate his normal social development as he matures and becomes of breeding age. At this time he shows no evidence of dependency on his keepers nor increased aggression towards them. The limited contact “Onyx” had with his care staff, as well as sustaining social integration with the herd during development, has thus far proven to be an effective way to nutritionally support a male sable.

Although this method appears to have been successful, it did have an unforeseen result on the herd dynamic. Once reunited with the herd permanently, the dam had lost her position in the hierarchy. Although she was never considered the most dominant animal in the herd, she was now the most subordinate animal. Aggression towards “Sprite” dramatically increased, so much so that the greatest aggressor was removed from the herd indefinitely. In the future, if this situation were to arise again, staff plans to house the herd together every night from the beginning to encourage daily interactions in the herd.

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We would like to thank Disney’s Animal Kingdom nutrition staff: Shannon Livingston, MS, Animal Nutrition Research Associate, and Eduardo Valdes, PhD, Animal Nutritionist, for their contributions and dietary guidance. We would also like to thank the West Savannah animal care staff for the work they did to make this paper possible and for their support. Many thanks go to the West Savannah zoological managers: Sam Berner, Karen Jasmin, and John Strickland as well as Joe Christman, Animal Operations Manager for their support and guidance. Last but not least, we would like to thank Dr. Jill Mellen, Education and Science Director, Disney’s Animal Kingdom, for editing this paper.

References

- Read, B. (1982) “Successful reintroduction of bottle-raised calves to antelope herds at the St. Louis Zoo”. *Int. Zoo Yearbook* No. 22: p. 269-270.
- Read, B., Noble, G. (1984) “Management of Sable Antelope, *Hippotragus niger*, at the St. Louis Zoological Park”. *AAZPA 1984 Regional Proceedings*: p. 353-356.

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Cheetah Conservation Fund Conducts Historic International Training Courses for Conservation Professionals

Otjiwarongo, Namibia - In August and September, the Cheetah Conservation Fund (CCF), based in Namibia, brought together conservation biologists and community development officers from more than a dozen cheetah-range countries for the first international courses on cheetah management practices. More than 30 conservationists participated in courses on Integrated Livestock and Predator Management and Cheetah Conservation Biology, to promote a unified and systematic approach to cheetah conservation.

The two workshops were run in cooperation with the Howard G. Buffett Foundation, the Cheetah Regional Strategic Planning partners and the Smithsonian Institution's National Zoological Park.



Participants in the first Integrated Livestock, Wildlife and Predator Management and Cheetah Conservation Biology course gathered around Dr. Laurie Marker, founder and Executive Director of CCF, CCF's cheetah ambassador Chewbaaka and Koya, a livestock guarding dog.

The training received by participants, who came from countries as diverse as Iran, Niger, Botswana and Kenya, focused on building capacity to conserve cheetahs and their ecosystems. CCF has spent the past two decades developing integrated livestock and wildlife management methods and has fostered the formation of conservancies to benefit both people and wildlife. Many of CCF's methods have been adopted by a variety of other organizations, but until this year there has not been a central source of information and training for wildlife conservation professionals.

"By training a network of regional professionals collaborating on regional cheetah strategies, the impact will expand from local pockets of protection dotting the cheetah's range countries to much broader, far-reaching and inter-connected swaths," said Laurie Marker, founder and Executive Director of CCF. "Regionalizing and unifying efforts will cause the conservation impact to be exponential."

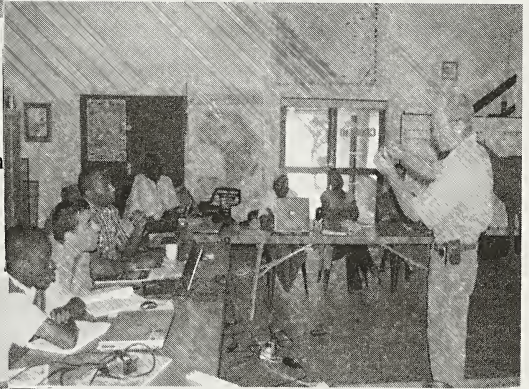
Lectures covered a wide variety of topics including how to collect and store biological samples of wild and captive cheetahs, how to conduct questionnaire surveys, veterinary techniques and sustainable animal production, the role of conservancies in achieving conservation goals, integrated management practices and kill identification, care of livestock guarding dogs, as well as the use of various techniques for estimating and monitoring cheetah populations. Participants were able to put theory into practice when they visited the Khoadi Hoas Communal Conservancy in Damaraland, and spoke to local subsistence farmers about human/wildlife conflict issues in the area.

Over the next three years, CCF will hold five more month-long training courses for conservation biology professionals. In addition, at least 120 community development officers/agriculture extension officers from cheetah range countries will be trained in two-week-long training courses held twice per year.



Dr. Laurie Marker, course participants and CCF staff surround the skin of a cheetah killed by a farmer (seated) in Damarakand, Namibia. Course participants learned CCF's methods of surveying farmers to determine the circumstances that led to the killing of a predator.

Dr. Axel Hartman, a Namibian veterinarian, explains techniques to Cheetah Conservation Biology course participants at CCF's Education Centre.

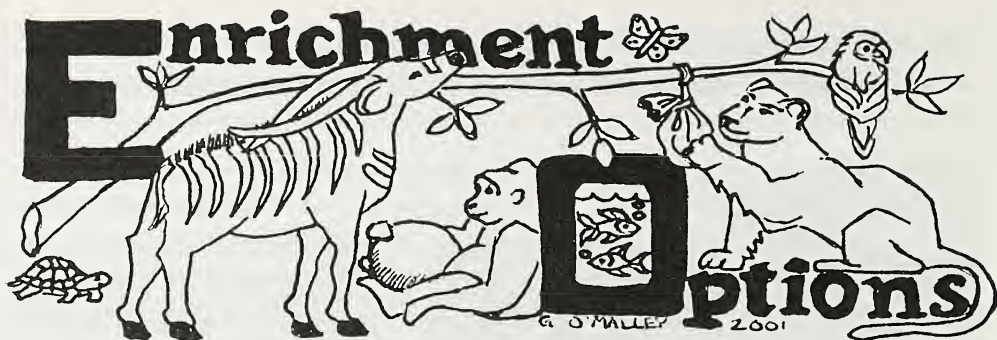


Cheetah Conservation Fund staff member Christopher Gordon explains radio tracking to an international Cheetah Conservation Biology course participant from Kenya.

Participants in the first international Cheetah Conservation Biology course help release three cheetahs back into the wild in Namibia.



All photos courtesy of CCF
(<http://www.cheetah.org>)



EO Editor - Rachel Daneault, Disney's Animal Kingdom

We Need Your Submissions

Since the days of Robert Yerkes and Heine Heideger, enrichment has evolved into a dynamic process. Zoos across the country are now regarding enrichment as a process rather than just single device initiatives. Zoo staff are looking at enrichment as holistic, emphasizing many aspects of the animals' behavior and environment. Enrichment programs are focusing on the importance of having goals for enrichment initiatives and promoting species appropriate behaviors. Zoo staffs are documenting how their animals are reacting to initiatives and using this information to improve animals' welfare. Animals' individual and natural histories are being studied to develop more appropriate enrichment initiatives.

We are looking for articles that discuss enrichment processes and philosophies as well as device articles. We would like device articles that discuss not only the construction of the device but also goals, behaviors to be encouraged and documentation. In Figure 1, you will find an outline that defines what we would like to see in an article about a particular enrichment initiative. We also want to know about the processes at your institution and how they work for you.

Here comes the critical piece to this equation. We need you, our readers, because you are our most important contributors. We need you to submit articles for publication. We want to share information with institutions all over the world, but we can't do it without your submissions. We want to hear about how the enrichment process works for your facility. We want to know about specific enrichment devices that are working for your animals.

Thank you in advance for your contributions!

Sincerely,

Rachel Daneault
Editor for the Enrichment Options Column

Figure 1:

The following template (from Mellen & Sevenich MacPhee, 2001) is to provide a loose set of guidelines for enrichment initiative articles to be submitted to the Enrichment Options Column. The article should include but is not limited to the information outlined in the template.

I. Setting Goals

- a. What behaviors are you trying to encourage with this enrichment device?
- b. Are these behaviors species specific? Was the animal's natural/individual history used to develop goal behaviors?
- c. Does the initiative serve a higher purpose other than just promoting certain behaviors? (e.g. Puzzle feeders used to distract animals from aggressive behavior with conspecifics)

II. Planning

- a. Sketches of prototypes, materials needed (including possible sources)
- b. Cost analysis
- c. Approval process
- d. Safety concerns
- e. Resources (time, staffing, implementation needs, etc.)

III. Implementation

- a. How the device was delivered to the animal
- b. How often the device is utilized
- c. How long was it in with the animal to ensure novelty retention

IV. Documentation

- a. How did you document the animal's reaction to the device? (e.g. Wrote in daily report that animal used device, video taped animal using device, etc)
- b. Did you use any scientific methods to document the results?

V. Evaluate

- a. How did you ascertain that the enrichment was successful? (e.g. Checked daily records over time, visually saw animal utilizing enrichment...)

VI. Re-evaluate

- a. Were any modifications made to the device after evaluating if it was successful?
- b. Are any future changes recommended to make the device function better, with greater ease, more safely, etc.?

References:

Mellen, J.; Sevenich MacPhee, M. 2001. Philosophy of environmental enrichment: Past, present and future. *Zoo Biology* 20: 211-226

www.animalenrichment.org

Conservation/Legislative Update

Column Coordinators: Becky Richendollar, North Carolina Zoo
and Greg McKinney, Philadelphia PA

This month's column was put together by
column co-coordinator Becky Richendollar



IUCN Red List Reveals World's Mammals in Crisis - The most comprehensive assessment of the world's mammals has confirmed an extinction crisis, with almost one in four at risk of disappearing forever, according to The IUCN Red List of Threatened Species™, revealed at the IUCN World Conservation Congress in Barcelona, Spain.

The new study to assess the world's mammals shows at least 1,141 of the 5,487 mammals on Earth are known to be threatened with extinction. At least 76 mammals have become extinct since 1500. But the results also show conservation can bring species back from the brink of extinction, with 5% of currently threatened mammals showing signs of recovery in the wild.

"Within our lifetime hundreds of species could be lost as a result of our own actions, a frightening sign of what is happening to the ecosystems where they live," says Julia Marton-Lefèvre, IUCN Director General. "We must now set clear targets for the future to reverse this trend to ensure that our enduring legacy is not to wipe out many of our closest relatives."

The real situation could be much worse as 836 mammals are listed as Data Deficient. With better information more species may well prove to be in danger of extinction.

"The reality is that the number of threatened mammals could be as high as 36%," says Jan Schipper, of Conservation International and lead author in a forthcoming article in *Science*. "This indicates that conservation action backed by research is a clear priority for the future, not only to improve the data so that we can evaluate threats to these poorly known species, but to investigate means to recover threatened species and populations."

The results show 188 mammals are in the highest threat category of Critically Endangered, including the Iberian Lynx (*Lynx pardinus*), which has a population of just 84-143 adults and has continued to decline due to a shortage of its primary prey, the European Rabbit (*Oryctolagus cuniculus*).



Père David's Deer

(photo: Canuckle for Wikipedia)

China's Père David's Deer (*Elaphurus davidianus*), is listed as Extinct in the Wild. However, the captive and semi-captive populations have increased in recent years and it is possible that truly wild populations could be re-established soon. It may be too late, however, to save the additional 29 species that have been flagged as Critically Endangered Possibly Extinct, including Cuba's Little Earth Hutia (*Mesocapromys sanfelipensis*), which has not been seen in nearly 40 years.

Nearly 450 mammals have been listed as Endangered, including the Tasmanian Devil (*Sarcophilus harrisii*), which moved from Least Concern to Endangered after the global population declined by more than 60% in the last 10 years due to a fatal infectious facial cancer.

The Fishing Cat (*Prionailurus viverrinus*), found in Southeast Asia, moved from Vulnerable to Endangered due to habitat loss in wetlands. Similarly, the Caspian Seal (*Pusa caspica*) moved from Vulnerable to Endangered. Its population has declined by 90% in the last 100 years due to unsustainable hunting and habitat degradation and is still decreasing.

Habitat loss and degradation affect 40% of the world's mammals. It is most extreme in Central and South America, West, East and Central Africa, Madagascar, and in South and Southeast Asia. Over harvesting is wiping out larger mammals, especially in Southeast Asia, but also in parts of Africa and South America.

The Grey-faced Sengi or Elephant-shrew (*Rhynchocyon udzungwensis*) is only known from two forests in the Udzungwa Mountains of Tanzania, both of which are fully protected but vulnerable to fires. The species was first described this year and has been placed in the Vulnerable category.

But it is not all bad news. The assessment of the world's mammals shows that species can recover with concerted conservation efforts. The Black-footed Ferret (*Mustela nigripes*) moved from Extinct in the Wild to Endangered after a successful reintroduction by the US Fish and Wildlife Service into eight western states and Mexico from 1991-2008. Similarly, the Wild Horse (*Equus ferus*) moved from Extinct in the Wild in 1996 to Critically Endangered this year after successful reintroductions started in Mongolia in the early 1990s.

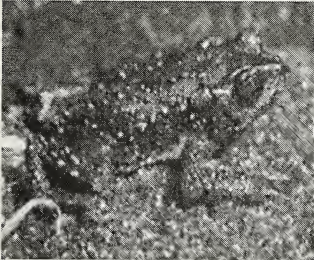
The African Elephant (*Loxodonta africana*) moved from Vulnerable to Near Threatened, although its status varies considerably across its range. The move reflects the recent and ongoing population increases in major populations in southern and eastern Africa. These increases are big enough to outweigh any decreases that may be taking place elsewhere.

The project to assess the world's mammals was conducted with help from more than 1,800 scientists from over 130 countries. It was made possible by the volunteer help of IUCN Species Survival Commission's specialist groups and the collaborations between top institutions and universities, including Conservation International, Sapienza University di Roma, Arizona State University, Texas A&M University, University of Virginia, and the Zoological Society of London.

Overall, the IUCN Red List now includes 44,838 species, of which 16,928 are threatened with extinction (38%). Of these, 3,246 are in the highest category of threat, Critically Endangered, 4,770 are Endangered and 8,912 are Vulnerable to extinction.

New groups of species have appeared on the IUCN Red List for the first time, increasing the diversity and richness of the data. Indian tarantulas (*Poecilotheria regalis*), highly prized by collectors and threatened by the international pet trade, have made their first appearance on the IUCN Red List. They face habitat loss due to new roads and settlements. The Rameshwaram Parachute Spider (*Poecilotheria hanumavilasumica*) has been listed as Critically Endangered as its natural habitat has been almost completely destroyed.

For the first time, all 161 grouper species have been assessed, of which 20 are threatened with extinction. The Squaretail Coral Grouper (*Plectropomus areolatus*) from the coral reefs of the Indo-Pacific has been listed as Vulnerable. The fish is seen as a luxury live food and is typically fished unsustainably at its spawning aggregations, a major threat for many grouper species.



Holbridge's Toad

(photo: W. VanDevender IUCN)

Amphibians are facing an extinction crisis, with 366 species added to the IUCN Red List this year. There are now 1,983 species (32%) either threatened or extinct. In Costa Rica, Holdridge's Toad (*Incilius holdridgei*), an endemic species, moved from Critically Endangered to Extinct, as it has not been seen since 1986 despite intensive surveys.

New reptiles assessed this year include the La Palma Giant Lizard (*Gallotia auaritae*). Found on the Canary Island of La Palma and thought to have become extinct in the last 500 years, it was rediscovered last year and is now listed as Critically Endangered. The Cuban Crocodile (*Crocodylus rhombifer*) is another Critically

Endangered reptile, moved from Endangered because of population declines caused by illicit hunting for its meat and its skin, which is used in clothing.

For more information visit www.iucn.org/redlist. Source: IUCN, 6 October 2008

Birds Indicate Biodiversity Crisis – And the Way Forward - Common birds are in decline across the world, providing evidence of a rapid deterioration in the global environment that is affecting all life on earth – including human life. All the world's governments have committed themselves to slowing or halting the loss of biodiversity by 2010. But reluctance to commit what are often trivial sums in terms of national budgets means that this target is almost certain to be missed.

These are some of the stark messages from *State of the World's Birds*, a new publication and website (birdlife.org/sowb) launched in late September at BirdLife International's World Conference in Buenos Aires.

"Birds provide an accurate and easy to read environmental barometer, allowing us to see clearly the pressures our current way of life are putting on the world's biodiversity", said Dr Mike Rands - BirdLife's CEO.

The report highlights worldwide losses among widespread and once-familiar birds. A staggering 45% of common European birds are declining: the familiar European Turtle-dove (*Streptopelia turtur*), for example, has lost 62% of its population in the last 25 years. On the other side of the globe, resident Australian wading birds have seen population losses of 81% in just quarter of a century.

Twenty North American common birds have more than halved in number in the last four decades. Northern Bobwhite (*Colinus virginianus*) fell most dramatically, by 82%. In Latin America, the Yellow Cardinal (*Gubernatrix cristata*) - once common in Argentina - is now classified as globally Endangered.

Millions of White-rumped Vultures (*Gyps bengalensis*) recently flew in Asian skies. In just sixteen years populations have crashed by 99.9% - the species is now classified as Critically Endangered. Widespread birds like the Eurasian Eagle Owl (*Bubo bubo*) are believed to be vanishing from Middle Eastern forests. Seabirds - including Critically Endangered Chatham Albatross (*Thalassarche eremite*) - are disappearing from the world's oceans.



White-rumped Vulture
(photo:Gordon Ekstrom)

"Many of these birds have been a familiar part of our everyday lives, and people who would not necessarily have noticed other environmental indicators have seen their numbers slipping away, and are wondering why" said Dr Rands. "Because birds are found almost everywhere on earth, they can act as our eyes and ears, and what they are telling us is that the deterioration in biodiversity and the environment is accelerating, not slowing."

State of the World's Birds identifies many key global threats, including the intensification of industrial-scale agriculture and fishing, the spread of invasive species, logging and the replacement of natural forest with monocultural plantations. However, Dr Rands warns: "In the long term, human-induced climate change may be the most serious stress of all".

The encouraging news is that conservation works and is relatively cheap. Direct action saved 16 bird species from extinction between 1994 and 2004. But conserving biodiversity now urgently needs more financial support.

"Effective biodiversity conservation is easily affordable, requiring relatively trivial sums at the scale of the global economy", said Dr Rands. For example, to maintain the protected area network which would safeguard 90 percent of Africa's biodiversity would cost less than \$1 billion US dollars a year -yet in a typical year the global community provides around \$300 million.

"The world is failing in its 2010 pledge to achieve a significant reduction in the current rate of loss of biodiversity", said Dr Rands. "The challenge is to harness international biodiversity commitments and ensure that concrete actions are taken — now!" Source: *BirdLife International*, 22 September 2008

Cincinnati Zoo Wins Federal Research Grant - The Cincinnati Zoo and Botanical Garden's Lindner Center for Conservation and Research of Endangered Wildlife (CREW) has won a National Leadership Grant to research breeding programs for rhinoceros and small cats. The \$835,000 grant, from the federal Institute of Museum and Library Services, will allow CREW to continue with its efforts to incorporate genome resource banks and assisted reproduction into the breeding and management of the endangered species.

“CREW’s project will involve collaborative work in five countries, including Indonesia, Brazil, Mongolia, India and South Africa, in addition to numerous zoos accredited by the Association of Zoos & Aquariums,” said Dr. Terri Roth, vice president of conservation and science for the zoo and director of CREW, in a news release.

CREW operates an 18,000-square-foot facility at the zoo, which includes plant and animal research programs. *Source: Business Courier, 2 October 2008*

Federal Judge’s Decision Makes Delisting Wolves Much Harder - The path to delisting the Rocky Mountain Gray Wolf (*Canis lupus occidentalis*) just got steeper with a decision by a Washington, D.C., federal judge Sept. 29. The delisting of Yellowstone grizzly bears (*Ursus arctos horribilis*) also may be in doubt. Judge Paul L. Friedman of the U.S. District Court for the District of Columbia ordered the Bush administration Monday to take back protection for gray wolves in the Great Lakes area under the Endangered Species Act. His decision, while technical, cuts to the heart of managing endangered species, especially large predators that have so many conflicts with people.

Gray wolves were removed from the endangered species list in 2007 in Minnesota, Wisconsin and Michigan. The population is booming and spreading out across the Midwest into the suburbs, farmland and south as far as Iowa. Wolves are spreading far beyond where all but the most doctrinaire environmentalists want them to be. For Minnesota, especially, which had wolves protected since 1975, delisting was a big relief and an opportunity to manage the species easier around farmers and others who suffered from wolf attacks on their pets and livestock.



Gray Wolf (*Canis lupus*)
(photo:USFWS)

Environmental groups sued, but the issue in the Midwest was far greater than the issues argued out here. Friedman said in his opinion that the central issue was whether the U.S. Fish and Wildlife Service may delist a “distinct population segment” of a species that is thriving even though the broader species remains endangered elsewhere.

Friedman said the Fish and Wildlife Service must give him and other judges a better explanation why they believe they can delist a species across part of its range even if it wasn’t first listed that way. That presents a new issue for the Bush administration if it intends to try to relist Rocky Mountain gray wolves before the end of his term. Its delisting package also limited where wolves would come off the list.



Grizzly Bear
(photo: Wikipedia)

It is an even bigger issue for the delisting of the Yellowstone grizzly bear (*Ursus arctos*) since it was listed across the lower 48 states and delisted only in Idaho, Wyoming and Montana. Draw an invisible line across Idaho. On the west side grizzly bears are protected as endangered. On the east side, they are protected by the state and can be killed with less red tape.

The court decision could open up a new debate about the Endangered Species Act that environmentalists have largely sought to avoid. Why are we putting wolves in the Rocky Mountains and not in the Adirondacks and other places in the East where we know they would thrive? Must we restore endangered species to all available habitat nationwide before delisting?

A few years ago Rep. Mike Simpson introduced a bill that would have authorized reintroducing wolves into the Catskills Mountains just outside of New York City. The legislation, Protecting America’s Wolves Act - or PAWS, was called “a wolf in sheep’s clothing” by Democratic Congressman Joe Crowley of the Bronx.

“Putting wolves in the Catskills is like putting them in Manhattan,” Crowley told me in 2000.

With this kind of reaction, Defenders of Wildlife decided for political reasons not to push the issue of restoring wolves in the East. Friedman’s decision is not going to make a lot of friends for the Endangered Species Act in the Midwest. Already, I am told, anti-wolf bumper stickers and posters are showing up in Wisconsin’s North Woods. That region is overrun with whitetail deer (*Odocoileus virginianus*) but that hasn’t stopped hunters there from blaming wolves when they didn’t bring home a trophy last November.

Perhaps Midwest congressmen may be ready to join Simpson in urging Big Apple residents to make a place for wolves in New York. After the last month in a financial crisis they just may support letting wolves loose on Wall Street. *Source: Idaho Statesman, Rocky Barker, 6 October 2008*

Captive Breeding Introduced Infectious Disease to Mallorcan Amphibians - A potentially deadly fungus that can kill frogs and toads was inadvertently introduced into Mallorca by a captive breeding program that was reintroducing a rare species of toad into the wild, according to a new study published in the 23 September issue of the journal *Current Biology*. The study, by researchers from Imperial College London and international colleagues, reveals that captive Mallorcan midwife toads (*Alytes muletensis*) released into the wild in 1991 were infected with the chytrid fungus *Batrachochytrium dendrobatidis* (Bd). Measures to screen the health of the toads did not pick up the fungus, because at the time it was not known to science.

The chytrid fungus, which lives in the water and on the skin of host amphibians such as frogs, toads, salamanders and newts, has been known to cause amphibian population extinctions in Europe. Globally, the disease has been found in over 87 countries and has driven rapid amphibian declines in areas including Australia and Central America, pushing some species to extinction. Bd is currently rare in the UK, having only been detected in three locations.



Mallorcan Midwife Toad

(Photo: Wikipedia)

The new study suggests that an endangered species of frog from South Africa, *Xenopus gilli*, which was housed in the same room as the Mallorcan midwife toads, was responsible for spreading the infection to them.

The captive breeding and reintroduction program for the Mallorcan midwife toad has been highly successful in increasing the numbers of the rare toad on the island. Over half of all the current populations on Mallorca are derived from reintroductions. Although the chytrid fungus can be deadly, toads appear to be doing well in three out of the four

populations in Mallorca infected with the chytrid fungus. This finding suggests that there are unidentified factors that are preventing the extinction of these populations. The situation is being closely monitored by the Mallorcan conservation authorities.

Global efforts to save amphibians from extinction hinge on species being taken into captivity and bred until they can be reintroduced to the wild. The researchers behind the new study say their findings reveal the risks of reintroducing species into the wild even when health screening is carried out, and highlight the need to ensure that species bred in captivity do not become infected with pathogens from other species.

As soon as Bd was discovered in the late 1990s, screening for the disease was incorporated into amphibian conservation plans. Zoos are now moving towards breeding threatened frogs in strictly quarantined, biosecure facilities in an effort to prevent the disease spreading in captivity. The chytrid fungus has also been added to a list of diseases that need to be quarantined compiled by the World Organization for Animal Health. It is hoped that these quarantine measures will help those involved in conservation efforts to stop Bd from spreading further, by controlling the international trade in infected animals.

Dr. Matthew Fisher, one of the authors of the study from the Department of Infectious Disease Epidemiology at Imperial College London, said: “Our study has shown that species reintroduction programs can have unpredicted and unintended effects. However in this case we believe that the toads are going to survive the infection. The global conservation community is united in its goal of

saving species from the effects of Bd, and we now have international legislation which should prevent this disease being accidentally introduced into the wild.”

The researchers reached their conclusions after comparing the specific genotype of Bd from infected wild toads from across Mallorca, and infected toads from mainland Spain, the UK and the rest of the world. They found that the disease in all Mallorcan toads was of the same genotype, and that this was a different genotype from those on mainland Europe and elsewhere.

Bd infects amphibians’ skin and is thought to interfere with their ability to absorb water. Over 257 amphibian species are known to be affected by Bd. Some species are very susceptible and die quickly while others, which are more resistant, are carriers of the pathogen. *Source: EurekAlert!, American Association for the Advancement of Science (AAAS), Cathleen Genova, 22 September 2008*

New Iguana Species Discovered in Fiji - A team of Australian and US scientists have found a new species of iguana living in Fiji. The newly discovered lizard is bright green with white bands, grows up to 90cm long and is thought to be highly endangered. Associate Professor Scott Keogh from the Australian National University’s School of Botany and Zoology said the iguana was the third species of the creatures known to inhabit Fiji.

Keogh said the origin of the Fiji iguanas, which have lived in the Fiji islands for millions of years, had long puzzled scientists. He said they probably floated across the Pacific Ocean from the Americas 8,000 kilometres away, where all other iguana species live.

“It is pretty clear that the rafting idea, even though it sounds implausible, is the only good explanation,” Keogh said.

The new species, *Brachylophus bulabula*, has been given the common name the Fijian banded iguana. Keogh said probably only a few hundred of the animals existed, and were under pressure for survival.



Fijian Banded Iguana
(Photo: Animals Alive.com)

“Pretty much in every island in Fiji there has been cats and mongooses and goats introduced, all of which are bad for iguanas,” Keogh said. He said two other iguana varieties had been eaten to extinction about 2,800 years ago with the arrival of humans on Fiji, but this one had survived.

“They are green, very difficult to see and they are high up in the trees. They are also small. These would be quite hard to catch and not much to eat,” he said.

Although iguanas exist in other Pacific islands they are relatively recent arrivals. They have lived in the wild in Vanuatu for just 30 years, and for probably about one thousand years in Tonga, Keogh said. *Source: Australian Associated Press (AAP), 18 September 2008*

Increased Protection Sought for Six Species in Seven Western States - The Center for Biological Diversity has filed five separate lawsuits concerning Bush Administration political interference in designation of critical habitat for six western species, including the western snowy plover (*Charadrius alexandrinus nivosus*), California tiger salamander (*Ambystoma californiense*), southwestern willow flycatcher (*Empidonax traillii eximius*), Buena Vista Lake shrew (*Sorex ornatus relictus*) and two California plants. The lawsuits represent the latest action in a campaign by the Center to reverse politically tainted decisions concerning dozens of endangered species. The campaign was initiated August 28, 2007 with the filing of a notice of intent to sue over decisions involving 55 endangered species in 28 states and 8.7 million acres of critical habitat.

“The Bush administration has the worst record protecting endangered species of any administration since passage of the landmark Endangered Species Act,” said Noah Greenwald, science director for the Center for Biological Diversity. “In the case of these six species, the administration’s malfeasance resulted in the removal of protection for over 300,000 acres of habitat in seven western states.”

For each of the six species, the Bush administration engineered drastic reductions in critical habitat. These reductions involved excluding large areas from critical habitat that were identified as “essential” to the survival or recovery of endangered species by U.S. Fish and Wildlife Service scientists. In the case of the California tiger salamander, for example, the administration excluded all of the 74,223 acres of critical habitat identified by agency scientists in Sonoma County, Calif. Cuts for the other species ranged from 23% to 100% of total acres identified by scientists as essential.

“The Bush administration has demonstrated a total disregard for the scientific conclusions of the government’s own scientists,” Greenwald said. “This disregard places these six species and numerous others at risk of extinction.”

The Bush administration’s mismanagement of the Endangered Species Act has come under increasing fire with investigations by the Government Accounting Office, House Natural Resources Committee and the Department of Interior’s own Inspector General. That has resulted in the resignation of high level officials including Julie MacDonald, former deputy assistant secretary of interior. Taken together, these investigations paint a picture of an administration that places the economic interests of industry-backed campaign contributors over the survival of the nation’s wildlife.

“The next administration is going to have their work cut out for them to correct the problems with endangered species management created by this administration,” Greenwald said. “The endangered species program needs a complete overhaul.”

Indeed, the next administration will be left with a legacy of 281 candidate species that are recognized as warranting protection, but have yet to be provided protection; a slew of critical habitat designations that the courts have found to be not scientifically based and therefore illegal; and an embattled U.S. Fish and Wildlife Service, whose scientists feel like they can’t do their jobs. Correcting these problems will require increased funding for the endangered species program, a schedule for providing protection to all candidate species in the next five years, revision of all critical habitat designations in which political interference limited protections, and policies that protect the agency’s scientists from political interference.

The Center’s efforts to reverse politically tainted decisions has already met with substantial success. In response to Center lawsuits, the Fish and Wildlife Service agreed to redo critical habitat designations for 15 species, including the California red-legged frog (*Rana aurora draytonii*), arroyo toad (*Bufo californicus*), vermilion darter (*Etheostoma chermocki*), Mississippi gopher frog (*Rana capito sevosa*), four New Mexico invertebrates, and seven plants from California, Oregon, and North Carolina. The newly proposed critical habitat designation for the California red-legged frog alone totals approximately 1.8 million acres — quadruple the area previously protected. In addition, the Service has agreed to reconsider listing the rare, highly imperiled Mexican garter snake (*Thamnophis eques megalops*) as an endangered species. Source: *The Center for Biological Diversity*, 2 October 2008



Delegates to the 2008 AAZK National Conference Gather for a Group Shot at Hogle Zoo

(Photo by Matthew Bates/Graphics Dept., Hogle Zoo)

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